

Polytechnic Institute

Polytechnic Institute

College Overview

The Purdue Polytechnic Institute, previously named the College of Technology, is one of 10 colleges at Purdue University offering undergraduate and graduate degrees. The college includes seven academic schools, departments, and divisions:

- Aviation and Transportation Technology
- Engineering Technology
- Computer and Information Technology
- Computer Graphics Technology
- Construction Management Technology
- Military Science & Technology
- Technology Leadership & Innovation.

The academic programs in the Purdue Polytechnic combine theory-based applied learning, team-based projects, integrated humanities studies, competency-based credentialing, and a series of experiential components such as industry-sponsored senior capstone projects, internships, global immersions, and certification-earning activities. The Polytechnic learning experience is designed to produce graduates who not only have deep technical knowledge and applied skills in their chosen discipline, but also possess problem-solving, critical thinking, communication, and leadership skills sought by industries and communities.

Admissions

<http://www.admissions.purdue.edu/majors/colleges.php?ClgCd=TECH>

Admission to Teacher Education

Teacher Education Program Guidelines 2016-17

Advising

Students in the Polytechnic Institute must meet with their advisor at least once per semester.

Meeting with your Advisor

- Some majors have group advising sessions, others have individual advising appointments or walk-in hours.
- Your advisor will email you with information about the procedure used in your department.

Preparing for your Advising Session

- Determine how many credit hours you want to take.
- Compile a list of courses and alternates that you would like to take.
- Determine that you meet all the prerequisites for the courses you want to take.
- Once the Schedule of Classes is available, make sure course times work together.

Topics Typically Covered in an Advising Session

- Progress toward your degree.
- Appropriate courses for the next semester.
- Academic standing.
- Internships, career fairs, and other non-academic opportunities.
- Registration PIN release (PINs will not be released by phone, email or text message).
- Other questions a student may have.

Contact Information

Purdue Polytechnic Institute
 West Lafayette, IN 47907
 (765) 494-4935
 E-mail: choosepolytechnic@purdue.edu

Polytechnic Statewide

The Purdue Polytechnic Institute Statewide is a unique partnership between education and business, industry and government. Polytechnic Statewide was created to extend Purdue's existing technology programs across the state where highly skilled workers with problem-solving skills are in great demand. Polytechnic Statewide also provides a mechanism for training presently employed people in state-of-the-industry technology.

Polytechnic Statewide represents a direct academic and administrative extension of the Purdue Polytechnic Institute at the West Lafayette campus. Although usually located on the campus of another university, academic, administrative and financial control rests with Purdue.

A technology advisory council, representative of key executives of business, industry, government and education, counsels on the development of the overall program. This partnership assists in the identification of general needs.

Registration. Admitted students are enrolled at each Purdue location.

Fees. Fees are charged per credit hour and vary by location. Fees are either set to match West Lafayette fees or those of the host institution at the location.

Degrees. All course credits apply toward a Purdue University degree and are transferable to other Purdue locations.

Counseling Services. Student counseling services are available at each Purdue program location.

Program Design. The programs are designed to prepare technologists for highly technical positions. Both part-time and full-time students are encouraged to enroll. All programs are of the highest quality and are operated in close cooperation with local business and industrial advisory committees. All programs follow the curricula offered at West Lafayette. Technical courses are similar to those on the West Lafayette campus, follow the same learning outcomes and are taught by Purdue faculty members.

The Statewide Technology program includes locations in Anderson, Columbus, Greensburg, Indianapolis, Kokomo, Lafayette, New Albany, Richmond, South Bend and Vincennes. Other communities in Indiana may be served as needs arise.

For Program Listings and Locations click [2016-17 Program Listings and Locations](#).

Polytechnic Institute Administration

Overview

Propel ideas into reality

Welcome to the fast lane. At the Polytechnic Institute, you'll discover how to harness the power of technology to have an immediate impact.

From making a smartphone brilliant to creating video games to improve a child's health, technology is the springboard for faster, greener and healthier solutions.

In our team-based labs you'll test ideas, take things apart and put them back together - only better. You'll learn side-by-side with professors who have worked in the industry and thrive on combining theory, imagination and real-world application. In this innovative environment, you'll learn by doing - gaining deep technical knowledge and applied skills in your chosen discipline as well as the problem-solving, critical-thinking, communication and leadership skills employers desire.

Companies like Amazon, Boeing, Caterpillar, Motorola, Honeywell Aerospace and Rolls-Royce know us well - they come knocking for our big-picture-thinking leaders.

[Polytechnic Institute Website](#)

Faculty

<https://polytechnic.purdue.edu/college-directory>.

Contact Information

For more information on the Polytechnic Institute, please visit <https://polytechnic.purdue.edu/>.

They can be reached at 765-494-4935 or at choosetechnology@purdue.edu.

Graduate Information

For Graduate Information please see [Polytechnic Administration Graduate Program Information](#).

Transdisciplinary Studies in Technology

Follow your passions and discover new ones in a Bachelor of Science program at Purdue University. You will design a personalized plan of study in our new transdisciplinary studies in technology major, blending fields like humanities and business with these technology-focused disciplines:

- Computing and graphics
- Construction management
- Engineering technologies
- Leadership and innovation
- Aviation technologies

Featuring hands-on team-based projects, transdisciplinary studies in technology will help you become a lifelong learner. It's a program especially for the trailblazers, the challenge-seekers, the pioneers - the students who are independent minded, ambitious, creative, passionate, reflective, and inventive.

A new major which made national headlines, transdisciplinary studies in technology is an educational experience unlike any other because it combines individualized learning with close mentoring by faculty experts and a competency based curriculum which clearly defines each ability, skill, behavior, and body of knowledge that you'll master.

Employers today have many positions with job titles that didn't exist only a few years ago. Want to forge your own path? Transdisciplinary studies in technology will provide you with broad technical competence and the abilities to think critically, to communicate effectively, and to adapt and thrive in our ever-changing world.

This unique competency-based degree is offered only by the Purdue Polytechnic Institute, one of the 10 academic colleges at Purdue University's main campus.

Special features

- In each semester's unique Design Lab and Seminar learning environments, you will learn discipline-specific theory and how to apply it to real-world problems.
- It's a student-centered culture called "" which focuses more on "show us what you can do with what you know" and less on memorization.
- You will create an electronic portfolio which documents your abilities and mastery of subjects - which you may choose to share with potential employers.
- Your peers might be studying different disciplines, so each of you will learn about different topics and contribute unique skills to make projects successful - a parallel of work environments common in industry.

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Transdisciplinary Studies in Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

TRST

120 Credits for Graduation

Departmental/Program Major Courses (120 credits)

Transdisciplinary Studies in Technology Required Major Courses (36 credits)

PTEC 10800 - Guided Exploration

Credit Hours: 4.00 to 8.00. The first in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learners experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

PTEC 20700 - ePortfolio I

Credit Hours: 0.50. Creation and curating of an electronic portfolio demonstrating developing and emerging levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 20800 - Formation And Immersion

Credit Hours: 4.00 to 8.00. The second in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

PTEC 30800 - Deep Immersion

Credit Hours: 4.00 to 8.00. The third in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

PTEC 40700 - ePortfolio II

Credit Hours: 0.50. Students curate an electronic portfolio demonstrating emerging to proficient levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 40800 - Capstone And Planning

Credit Hours: 4.00 to 8.00. The final in a series of transdisciplinary, real-world, project-based work and conversations exploring

the intersections of humanities and technology, social and natural sciences. Capstone projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will demonstrate proficiency based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

Other Departmental /Program Course Requirements (84 credits)

- UCC WR (satisfies Written Communication for core) - Credit Hours: 4.00
- UCC OC (satisfies Oral Communication for core) - Credit Hours: 3.00
- UCC IL (satisfies Information Literacy Selective for core) - Credit Hours: 3.00
- UCC QR (satisfies Quantitative Reasoning Selective for core) - Credit Hours: 3.00
- UCC Science (satisfies Science Selective for core) - Credit Hours: 7.00
- UCC STS (satisfies Science, Technology and Society for the core) - Credit Hours: 3.00
- UCC HUM (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- UCC BSS (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Advanced MA (>15999) or STAT (>19999) - Credit Hours: 3.00
- >20000 Humanities - Credit Hours: 3.00
- >30000 level OC or WR - Credit Hours: 3.00
- >09999 Technology Selective (Any AT, BCM, CGT, CNIT, ECET, ENGT, IET, IT, MET, MFET, OLS, TECH, TLI 10000 level or higher) - Credit Hours: 3.00
- >10000 Disciplinary Knowledge - Credit Hours: 9.00
- >20000 Disciplinary Knowledge - Credit Hours: 13.00
- >30000 Disciplinary Knowledge - Credit Hours: 12.00
- >40000 Disciplinary Knowledge - Credit Hours: 9.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or click here.

Program Requirements

Suggested Arrangement of Required Courses.

Fall 1st Year

PTEC 20700 - ePortfolio I

Credit Hours: 0.50. Creation and curating of an electronic portfolio demonstrating developing and emerging levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 10800 - Guided Exploration

Credit Hours: 4.00 to 8.00. The first in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learners experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- >09999 Technology Selective - Credit Hours: 3.00
- OC* (UCC)^{3,4} - Credit Hours: 3.00
- Math QR* (UCC)^{3,4} - Credit Hours: 3.00
- >10000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00

16.5 Credits

Spring 1st Year

PTEC 20700 - ePortfolio I

Credit Hours: 0.50. Creation and curating of an electronic portfolio demonstrating developing and emerging levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 10800 - Guided Exploration

Credit Hours: 4.00 to 8.00. The first in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learners experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- HUM* (UCC)^{3,4} - Credit Hours: 3.00
- WC* (UCC)^{3,4} - Credit Hours: 4.00

- Science* (UCC)^{3,4} - Credit Hours: 4.00

15.5 Credits

Fall 2nd Year

PTEC 20700 - ePortfolio I

Credit Hours: 0.50. Creation and curating of an electronic portfolio demonstrating developing and emerging levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 20800 - Formation And Immersion

Credit Hours: 4.00 to 8.00. The second in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs.

Permission of department required. Typically offered Fall Spring Summer.

- >10000 level Disciplinary Knowledge⁴ - CreditHours: 3.00
- STS* (UCC)^{3,4} - CreditHours: 3.00
- >10000 level Disciplinary Knowledge⁴ - CreditHours: 3.00

13.5 Credits

Spring 2nd Year

PTEC 20700 - ePortfolio I

Credit Hours: 0.50. Creation and curating of an electronic portfolio demonstrating developing and emerging levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 20800 - Formation And Immersion

Credit Hours: 4.00 to 8.00. The second in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking;

collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs.

Permission of department required. Typically offered Fall Spring Summer.

- >20000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- Science* (UCC)^{3,4} - Credit Hours: 3.00
- >20000 level Humanities⁴ - Credit Hours: 3.00
- IL* (UCC)^{3,4} - Credit Hours: 3.00

16.5 Credits

Fall 3rd Year

PTEC 40700 - ePortfolio II

Credit Hours: 0.50. Students curate an electronic portfolio demonstrating emerging to proficient levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 30800 - Deep Immersion

Credit Hours: 4.00 to 8.00. The third in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- Advanced MATH (>15999) or STAT (>19999) - Credit Hours: 3.00
- >20000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >20000 level Disciplinary Knowledge⁴ - Credit Hours: 4.00

14.5 Credits

Spring 3rd Year

PTEC 40700 - ePortfolio II

Credit Hours: 0.50. Students curate an electronic portfolio demonstrating emerging to proficient levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 30800 - Deep Immersion

Credit Hours: 4.00 to 8.00. The third in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will change in scale and scope based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- >20000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >30000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >30000 level OC or WC⁴ - Credit Hours: 3.00
- BSS* (UCC)^{3,4} - Credit Hours: 3.00

16.5 Credits

Fall 4th Year

PTEC 40700 - ePortfolio II

Credit Hours: 0.50. Students curate an electronic portfolio demonstrating emerging to proficient levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 40800 - Capstone And Planning

Credit Hours: 4.00 to 8.00. The final in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Capstone projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will demonstrate proficiency based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- >30000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >30000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >30000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00

13.5 Credits

Spring 4th Year

PTEC 40700 - ePortfolio II

Credit Hours: 0.50. Students curate an electronic portfolio demonstrating emerging to proficient levels of competence across broad competencies. Students will meet individually and in small groups with faculty mentors to review and critique progress. Permission of department required. Typically offered Fall Spring Summer.

PTEC 40800 - Capstone And Planning

Credit Hours: 4.00 to 8.00. The final in a series of transdisciplinary, real-world, project-based work and conversations exploring the intersections of humanities and technology, social and natural sciences. Capstone projects emphasize design thinking; collaboration; communication; hands-on prototyping; testing; assessing. Learners will engage in individual and team project work and conversations that will demonstrate proficiency based on the learner's experience, goals, and learning needs. Permission of department required. Typically offered Fall Spring Summer.

- >40000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >40000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00
- >40000 level Disciplinary Knowledge⁴ - Credit Hours: 3.00

13.5 Credits

Note

* Fulfills University Core

1. Non-course degree requirement: Student demonstration of expertise in eight broad competencies. Monitored and reviewed continuously in Transdisciplinary Learning Experiences (PTEC 10800, 20800, ...). ePortfolio is formally assessed 4 times during the plan of study to satisfy this requirement.
2. These are courses specifically designed for this degree. ePortfolio (PTEC 20700, 40700) are pass/no pass. Transdisciplinary Learning Experiences (PTEC 10800-40800) are variable credit.
3. Any courses from the Undergraduate Curriculum Council (UCC) Approved Course List to satisfy the appropriate foundational core requirement. Acronyms are as follows: BSS - Behavioral/Social Sciences, HUM - Humanities, IL - Information Literacy, OC - Oral Communication, QR - Quantitative Reasoning, STS - Science, Technology and Society, WC - Written Communication. It is preferred that students take one course from physical sciences and one from life sciences.
4. Any course for which the student meets the prerequisites and meets their personal and professional goals as determined by the student in consultation with their faculty mentor.
5. By the end of the Semester 3, students identify their mission and, with the help of their faculty mentor, develop a detailed plan of learning. At this time, they identify one or more technology disciplines and at least one humanities discipline. For example, Computing (CIT, CGT or ECET), Engineering Technology.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Department of Aviation Technology

Overview

Purdue Aviation has been a leader in aviation education since before the Purdue Polytechnic Institute was founded in 1964. The School of Aviation and Transportation Technology offers seven majors at the bachelor's degree level. The curriculum touches all areas of the aviation industry, from flight to design to the business aspects.

With our focus on industry partnerships, undergraduate students have access to real-world projects, networking opportunities and up-to-date information that make them desirable future employees and leaders. Flexible scheduling can also help you get into the workforce sooner.

Faculty

<https://polytechnic.purdue.edu/departments/aviation-technology/directory>

Contact Information

School of Aviation and Transportation Technology

1401 Aviation Drive

West Lafayette IN 47907-2015

Phone: 765.494.5782

Email: atinfo@purdue.edu

Fax: 765.494.2305

Graduate Information

For Graduate Information please see Aviation Technology Graduate Program Information.

Aeronautical Engineering Technology, BS

About the Program

Airplanes are complex mechanical marvels, utilizing several different disciplines of science, engineering and mathematics. A degree in aeronautical engineering technology will provide you with the skills and knowledge to create and maintain these machines as well as improve the quality of life for those who depend on and use them. Over the course of the program you will learn how to design, manufacture, maintain, operate and support all varieties of aerospace vehicles.

Disciplines covered in the AET program include applied aeronautical structures and materials, electrical systems, powerplants, vehicle systems and design. A Bachelor of Science degree in AET will optionally provide you with an opportunity to take the Airframe and Powerplant Certification exam.

Aeronautical Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Aeronautical Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

AENT-BS

120 credits for graduation

Departmental/Program Major Courses (116 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49600 - Applied Research Proposal

Credit Hours: 1.00. Students will study all aspects of performing a product or process design review and life-cycle management analysis. Topics include reliability, supportability, life cycle management, and performance analysis. Each student will select their capstone research area and development a proposal for conducting a product or process analysis for their applied research project. Typically offered Summer Fall Spring.

AT 49700 - Applied Research Project

Credit Hours: 3.00. This capstone course requires students to conduct an in-depth product or process evaluation. The evaluation includes analyzing product or process performance against design criteria to complete their applied research project. Typically offered Summer Fall Spring.

AT 20802 - Aircraft Materials

Credit Hours: 3.00. In this course students study aluminum and composite materials used in aircraft. The course covers elements of design, fabrication, final assembly, and testing. Students also study the practical application of statics for airframe loads. Typically offered Fall Spring Summer.

AT 26502 - Aircraft Electrical Systems

Credit Hours: 3.00. An in-depth study of aircraft electrical components, both individually and as systems in the aircraft. DC electrical circuits, series and parallel circuits, magnetism, and electromagnetism are covered, as are DC power systems, schematics, and aircraft wiring practices. Aircraft charging systems, main power distribution, solid state electronics, batteries, and motors are also discussed. Typically offered Fall Spring Summer.

AT 26700 - Fixed And Rotary Wing Assemblies

Credit Hours: 3.00. An overview of various fixed and rotary wing components and systems. Flight control systems, landing gear, fuel systems, wheels, brakes, and rotor systems are among the subjects studied. Typically offered Fall Spring.

AT 27200 - Introduction To Composite Technology

Credit Hours: 3.00. An introduction to basic composite materials, processes, construction, testing, and repair. Students will work with a variety of wet and pre-impregnated fiber and matrix systems including glass, aramid fiber, and carbon-graphite. Typically offered Fall Spring.

AT 27800 - Nondestructive Testing For Aircraft

Credit Hours: 3.00. A study of nondestructive testing methods used to evaluate the structural integrity of airframes, engines, and components. Magnetic particle, liquid penetrant, electromagnetic, ultrasonic, and radiographic inspection are covered. Typically offered Fall Spring.

AT 30702 - Advanced Aircraft Systems

Credit Hours: 3.00. An in-depth study of aircraft components and operation with an emphasis on transport-category aircraft. Systems covered include fuel, environmental, fluid-power, flight control, fire protection, ice-control, warning, and auxiliary power. Practical projects utilize small ad transport-category aircraft. Typically offered Fall Spring Summer.

AT 30802 - Aircraft Materials Processes

Credit Hours: 3.00. A study of the processes by which aircraft materials are converted into usable components. Laboratory activities include machining, welding, and analysis of material properties. Typically offered Fall Spring Summer.

AT 33502 - Avionics Systems

Credit Hours: 3.00. This course covers the theory of operation and applications of common electrical components used in various aircraft circuits. The theory and mathematical relationships of alternating current, reactance, impedance, and phase shift are examined. Operational theory, installation practices, and troubleshooting concepts of common aircraft communication and navigation systems are investigated. Typically offered Fall Spring Summer.

AT 37002 - Advanced Aircraft Powerplants

Credit Hours: 3.00. This course covers the design, construction, operation, and overhaul practices of aircraft reciprocating and small gas-turbine engines. Airworthiness evaluation, fault-isolation techniques, and standard service and maintenance practices are emphasized. Dimensional and visual inspection and testing of engines following overhaul are stressed, as well. Typically offered Fall Spring Summer.

AT 37600 - Aircraft Gas Turbine Engine Technology I

Credit Hours: 3.00. Basic aircraft gas turbine engine theory, nomenclature, component design, turbine engine systems, operation, and fault isolation techniques are emphasized. Turbine engine maintenance, overhaul, operation, and inspection procedures are studied in detail. Typically offered Fall Spring.

AT 38500 - Design Support Analysis

Credit Hours: 3.00. This course is designed to teach students interested in engineering design, design support, customer support, or aerospace manufacturing, the elements of product support and the analysis of design as related to the manufacturability, maintainability, and supportability of aerospace products. The students will be expected to complete a life cycle cost analysis and logistics plan for a design. Typically offered Summer Fall Spring.

AT 44502 - Aircraft Electronics

Credit Hours: 3.00. A study of the computer-based electronic systems used to control both flight and engine parameters on modern aircraft. The course examines the various systems with an emphasis on how each component integrates into the electronic structure of the aircraft. Typically offered Fall Spring Summer.

AT 47600 - Aircraft Gas Turbine Engine Technology II

Credit Hours: 3.00. This is a study of turbofan engines and systems. Engine installation, testing, and operational procedures are stressed. Emphasis is placed on performance evaluation, data calculations, and predictions of operational properties. Turbofan design theory, operational efficiencies, and fault isolation are discussed. Typically offered Fall Spring.

- Globalization - Credit Hours: 0.00

Other Departmental /Program Course Requirements (57 credits)

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

AT 20501 - Statics For Aerostructures

Credit Hours: 3.00. This course provides an introduction to the static analysis of aerostructures. Force systems, resultants and equilibrium, moments, distributed loads, and centroids as they relate to aeronautical structures are studied. CAD software is introduced. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related

professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (4 credits)

- Free Electives - Credit Hours: 4.00

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

(201710)

Fall 1st Year

First Semester

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Composition Selective - Credit Hours: 3.00

16 Credits

Spring 1st Year

Second Semester

AT 20802 - Aircraft Materials

Credit Hours: 3.00. In this course students study aluminum and composite materials used in aircraft. The course covers elements of design, fabrication, final assembly, and testing. Students also study the practical application of statics for airframe loads. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative

and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Foundational Selective - Credit Hours: 3.00
- Calculus Selective - Credit Hours: 3.00

14 Credits

Fall 2nd Year

Third Semester

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 26700 - Fixed And Rotary Wing Assemblies

Credit Hours: 3.00. An overview of various fixed and rotary wing components and systems. Flight control systems, landing gear, fuel systems, wheels, brakes, and rotor systems are among the subjects studied. Typically offered Fall Spring.

AT 27200 - Introduction To Composite Technology

Credit Hours: 3.00. An introduction to basic composite materials, processes, construction, testing, and repair. Students will work with a variety of wet and pre-impregnated fiber and matrix systems including glass, aramid fiber, and carbon-graphite. Typically offered Fall Spring.

15 Credits

Spring 2nd Year

Fourth Semester

AT 20501 - Statics For Aerostructures

Credit Hours: 3.00. This course provides an introduction to the static analysis of aerostructures. Force systems, resultants and equilibrium, moments, distributed loads, and centroids as they relate to aeronautical structures are studied. CAD software is introduced. Typically offered Fall Spring Summer.

AT 26502 - Aircraft Electrical Systems

Credit Hours: 3.00. An in-depth study of aircraft electrical components, both individually and as systems in the aircraft. DC electrical circuits, series and parallel circuits, magnetism, and electromagnetism are covered, as are DC power systems, schematics, and aircraft wiring practices. Aircraft charging systems, main power distribution, solid state electronics, batteries, and motors are also discussed. Typically offered Fall Spring Summer.

AT 27800 - Nondestructive Testing For Aircraft

Credit Hours: 3.00. A study of nondestructive testing methods used to evaluate the structural integrity of airframes, engines, and components. Magnetic particle, liquid penetrant, electromagnetic, ultrasonic, and radiographic inspection are covered. Typically offered Fall Spring.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Free Elective - Credit Hours: 2.00

15 Credits

Fall 3rd Year

Fifth Semester

AT 30702 - Advanced Aircraft Systems

Credit Hours: 3.00. An in-depth study of aircraft components and operation with an emphasis on transport-category aircraft. Systems covered include fuel, environmental, fluid-power, flight control, fire protection, ice-control, warning, and auxiliary power. Practical projects utilize small ad transport-category aircraft. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Thematic Area Selective (AT 36302 for A&P) - Credit Hours: 3.00
- Behavioral/Social Science Found. Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

Sixth Semester

AT 30802 - Aircraft Materials Processes

Credit Hours: 3.00. A study of the processes by which aircraft materials are converted into usable components. Laboratory activities include machining, welding, and analysis of material properties. Typically offered Fall Spring Summer.

AT 33502 - Avionics Systems

Credit Hours: 3.00. This course covers the theory of operation and applications of common electrical components used in various aircraft circuits. The theory and mathematical relationships of alternating current, reactance, impedance, and phase shift are examined. Operational theory, installation practices, and troubleshooting concepts of common aircraft communication and navigation systems are investigated. Typically offered Fall Spring Summer.

AT 37600 - Aircraft Gas Turbine Engine Technology I

Credit Hours: 3.00. Basic aircraft gas turbine engine theory, nomenclature, component design, turbine engine systems, operation, and fault isolation techniques are emphasized. Turbine engine maintenance, overhaul, operation, and inspection procedures are studied in detail. Typically offered Fall Spring.

AT 38500 - Design Support Analysis

Credit Hours: 3.00. This course is designed to teach students interested in engineering design, design support, customer support, or aerospace manufacturing, the elements of product support and the analysis of design as related to the manufacturability, maintainability, and supportability of aerospace products. The students will be expected to complete a life cycle cost analysis and logistics plan for a design. Typically offered Summer Fall Spring.

- Advanced English Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

Seventh Semester

AT 37002 - Advanced Aircraft Powerplants

Credit Hours: 3.00. This course covers the design, construction, operation, and overhaul practices of aircraft reciprocating and small gas-turbine engines. Airworthiness evaluation, fault-isolation techniques, and standard service and maintenance practices are emphasized. Dimensional and visual inspection and testing of engines following overhaul are stressed, as well. Typically offered Fall Spring Summer.

AT 44502 - Aircraft Electronics

Credit Hours: 3.00. A study of the computer-based electronic systems used to control both flight and engine parameters on modern aircraft. The course examines the various systems with an emphasis on how each component integrates into the electronic structure of the aircraft. Typically offered Fall Spring Summer.

AT 47600 - Aircraft Gas Turbine Engine Technology II

Credit Hours: 3.00. This is a study of turbofan engines and systems. Engine installation, testing, and operational procedures are stressed. Emphasis is placed on performance evaluation, data calculations, and predictions of operational properties. Turbofan design theory, operational efficiencies, and fault isolation are discussed. Typically offered Fall Spring.

AT 49600 - Applied Research Proposal

Credit Hours: 1.00. Students will study all aspects of performing a product or process design review and life-cycle management analysis. Topics include reliability, supportability, life cycle management, and performance analysis. Each student will select their capstone research area and development a proposal for conducting a product or process analysis for their applied research project. Typically offered Summer Fall Spring.

- Economics Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15 Credits

Spring 4th Year

Eighth Semester

AT 49700 - Applied Research Project

Credit Hours: 3.00. This capstone course requires students to conduct an in-depth product or process evaluation. The evaluation includes analyzing product or process performance against design criteria to complete their applied research project. Typically offered Summer Fall Spring.

- Thematic Area Selective (AT 37200 for A&P) - Credit Hours: 3.00
- Thematic Area Selective (AT 40200 for A&P) - Credit Hours: 3.00
- Thematic Area Selective (AT 47200 for A&P) - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

15 Credits

Note

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Aerospace Financial Analysis, BS

About the Program

The business side of aviation industry is complex, from aircraft leases to fuel options to route efficiency. When you major in aerospace financial analysis at Purdue University, you will gain the expertise necessary to bridge the knowledge gap between airline operations professionals and their financial counterparts.

Aerospace Financial Analysis Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Aerospace Financial Analysis include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

AEFA

120 credits for graduation

Departmental/Program Major Courses (111 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

AT 34001 - Aerospace Business Statistics

Credit Hours: 3.00. This course provides an introduction to business statistics with a specific focus on managerial decision making in the aerospace industry. The course will focus on aircraft leasing and value determination. Topics include descriptive statistics, probability models, estimation, hypothesis testing, and regression analysis. Students use software to perform their own analyses. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 42201 - Aerospace Risk Management

Credit Hours: 3.00. This course focuses on students' understanding of the financial expertise needed to analyze trading and hedging programs for application in reducing aerospace risk exposure. The studies include research into the development and use of operational indices and their possible relation to hedging with commodity and security instruments. Emphasis will be placed on trading methods, use of futures, options, derivatives, and swaps as hedging financial instruments in providing improved risk management. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

MGMT 30400 - Introduction To Financial Management

Credit Hours: 3.00. Introductory course providing a foundation in corporate finance and covering topics such as: discounted cash flow valuation, bond valuation, equity valuation, option valuation, factors influencing a firm's cost of capital, and international finance issues. Typically offered Fall Spring.

- Aviation Management Selectives - Credit Hours: 3.00

- Globalization - Credit Hours: 0.00

Other Departmental /Program Course Requirements (52 credits)

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit

toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00
- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (9 credits)

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

Fall 1st Year

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

- English Composition Selective - Credit Hours: 3.00

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall

structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems, including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Calculus Selective - Credit Hours: 3.00

16 Credits

Fall 2nd Year

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field

research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Foundational Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer.
CCN:IPO 1802 Accounting II

- Economics Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

AT 34001 - Aerospace Business Statistics

Credit Hours: 3.00. This course provides an introduction to business statistics with a specific focus on managerial decision making in the aerospace industry. The course will focus on aircraft leasing and value determination. Topics include descriptive statistics, probability models, estimation, hypothesis testing, and regression analysis. Students use software to perform their own analyses. Typically offered Fall Spring Summer.

MGMT 30400 - Introduction To Financial Management

Credit Hours: 3.00. Introductory course providing a foundation in corporate finance and covering topics such as: discounted cash flow valuation, bond valuation, equity valuation, option valuation, factors influencing a firm's cost of capital, and international finance issues. Typically offered Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Behavioral/Social Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

- Aviation Management Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

AT 42201 - Aerospace Risk Management

Credit Hours: 3.00. This course focuses on students' understanding of the financial expertise needed to analyze trading and hedging programs for application in reducing aerospace risk exposure. The studies include research into the development and use of operational indices and their possible relation to hedging with commodity and security instruments. Emphasis will be placed on trading methods, use of futures, options, derivatives, and swaps as hedging financial instruments in providing improved risk management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

15 Credits

Notes

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Airline Management and Operations, BS

About the Program

Managing an airline takes more than shuttling passengers between airports. It includes scheduling, planning networks, maintenance of aircraft, staffing, customer service and more. When you major in airline management and operations at Purdue University you will gain the expertise necessary to navigate the many aspects of managing an airline. You will gain a broad exposure to aviation management with a strong focus on airline operations. Your courses will provide insights into how the world's airlines make daily business decisions.

[Airline Management Operations Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Airline Management and Operations include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

ALMO

120 credits for graduation

Departmental/Program Major Courses (111 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

AT 33800 - Airline Management

Credit Hours: 3.00. This course is a detailed study of airline management principles and processes. Topics include airline, economics, organization, forecasting, marketing, alliances, pricing, scheduling, finance, fleet planning, labor relations and air freight. Business ethics pertaining to airlines are introduced. Typically offered Fall Spring.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 43800 - Airline Operations

Credit Hours: 3.00. Students in this course study airline operations in depth. Topics include marketing, route analysis, aircraft selection, financial analysis, federal regulations, and scheduling. Currently industry problems are discussed as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

- Aviation Management Selectives - Credit Hours: 6.00
- Globalization - Credit Hours: 0.00

Other Departmental/Program Course Requirements (52 credits)

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain

technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00
- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (9 credits)

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

Fall 1st Year

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Composition Selective - Credit Hours: 3.00

14 Credits

Spring 1st Year

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Calculus Selective - Credit Hours: 3.00

16 Credits

Fall 2nd Year

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Foundational Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

- Economics Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

AT 33800 - Airline Management

Credit Hours: 3.00. This course is a detailed study of airline management principles and processes. Topics include airline, economics, organization, forecasting, marketing, alliances, pricing, scheduling, finance, fleet planning, labor relations and air freight. Business ethics pertaining to airlines are introduced. Typically offered Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Aviation Management Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Behavioral / Social Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the

aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

AT 43800 - Airline Operations

Credit Hours: 3.00. Students in this course study airline operations in depth. Topics include marketing, route analysis, aircraft selection, financial analysis, federal regulations, and scheduling. Currently industry problems are discussed as well. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Aviation Management Selective - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

15 Credits

Notes

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Airport Management and Operations, BS

About the Program

Managing an airport takes more than loading passengers and maintaining runways. It includes security, customer service, knowledge of federal regulations, baggage handling, staffing and more. When you major in airport management and operations at Purdue University you will gain the expertise necessary to navigate the many aspects of operating an airport. You will gain a broad exposure to aviation management with a strong focus on airport operations. Your courses will provide insights into how the world's airports make daily business decisions.

[Airport Management Operations Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Airport Management and Operations include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

APMO

120 credits for graduation

Departmental/Program Major Courses (111 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

AT 35900 - Airport Management

Credit Hours: 3.00. This course is a study of the history and development of contemporary airport facilities. Areas of study will include FAA airport design requirements, master plans, and airport operations. Field trips may be required. Typically offered Summer Fall Spring.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 45100 - Airport Operations

Credit Hours: 3.00. This course is an in-depth examination of airport operations for air carrier and general aviation airports, with a strong emphasis on practical problem solving of current operational issues facing local and area airports. Typically offered Summer Fall Spring.

AT 45900 - Airport Manager Certification

Credit Hours: 3.00. This course prepares students for the certified manager exam offered by the American Association of Airport Executives (AAAE). This certificate is the first step toward industry accreditation as an airport manager and director. Typically offered Spring.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

- Aviation Management Selectives - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

Other Departmental/Program Course Requirements (52 credits)

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of

definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00
- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (9 credits)

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

Fall 1st Semester

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Composition Selective - Credit Hours: 3.00

14 Credits

Spring 1st Year

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Calculus Selective - Credit Hours: 3.00

16 Credits

Fall 2nd Year

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from

interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Foundational Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

- Economics Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

AT 35900 - Airport Management

Credit Hours: 3.00. This course is a study of the history and development of contemporary airport facilities. Areas of study will include FAA airport design requirements, master plans, and airport operations. Field trips may be required. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Aviation Management Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Behavioral / Social Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

AT 45100 - Airport Operations

Credit Hours: 3.00. This course is an in-depth examination of airport operations for air carrier and general aviation airports, with a strong emphasis on practical problem solving of current operational issues facing local and area airports. Typically offered Summer Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 45900 - Airport Manager Certification

Credit Hours: 3.00. This course prepares students for the certified manager exam offered by the American Association of Airport Executives (AAAE). This certificate is the first step toward industry accreditation as an airport manager and director. Typically offered Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

15 Credits

Notes

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Aviation Management, BS

About the Program

At any given time there are thousands of airplanes crisscrossing the globe. Operations on the ground -- airports, airline companies, air traffic controllers, and more -- help ensure passenger safety, efficient logistics and healthy business practices. For

these roles, the industry requires knowledgeable individuals with excellent critical thinking skills. With an aviation management degree, you will gain the knowledge and skills to be an important part of the complex airline industry.

Aviation Management Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Aviation Management include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

AVMG

120 credits for graduation

Departmental/Program Major Courses (111 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be

assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer.
CCN:IPO 1802 Accounting II

- Aviation Management Selectives - Credit Hours: 12.00
- Globalization - Credit Hours: 0.00

Other Departmental /Program Course Requirements (52 credits)

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative

and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (9 credits)

- Free Electives - Credit Hours: 9.00

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first

semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

(201610)

Fall 1st Year

First Semester

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10600 - Basic Aircraft Science

Credit Hours: 3.00. An introduction to federal regulatory systems and associated publications. Includes aircraft nomenclature, theory of flight, and fundamentals of the aviation industry. Introduces weight and balance procedures. Permission of department required. Typically offered Fall Spring.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Composition Selective - Credit Hours: 3.00

14 Credits

Spring 1st Year

Second Semester

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Calculus Selective - Credit Hours: 3.00

16 Credits

Fall 2nd Year

Third Semester

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 25200 - Aviation Projects

Credit Hours: 3.00. This course will introduce the students to group projects in collaboration with industrial partners in aviation. A new project will be conducted each semester. Students will participate in the development of project goals, conducting field research, and developing a final course document and presentation. Travel outside of the normal assigned classroom time might be required. Permission of Department required. Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Foundational Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

Fourth Semester

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 36201 - Aviation Operations

Credit Hours: 3.00. This course introduces students to the principles of managing a complex aviation operation. Students will be assigned active roles in monitoring and reporting on aircraft flight and maintenance practices. Every student will be assigned a role as part of a small group whose responsibility is to gather appropriate information, develop reports, and conduct practical research tasks as assigned. Weekly and monthly group meetings will be conducted similar to those found in the airline industry with students playing an active role in these meetings. Typically offered Fall Spring Summer.

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

- Economics Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

Fifth Semester

- Aviation Management Selective - Credit Hours: 3.00
- Aviation Management Selective - Credit Hours: 3.00

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Behavioral / Social Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

Sixth Semester

AT 42101 - Managerial Economics In Aviation

Credit Hours: 3.00. This course explores the process of making managerial decisions based on modern economic principles and concepts, and provides the student with a set of tools that can be used to make those decisions. Marginal analysis, forecasting, and cost analysis concepts are introduced, as are game-theoretic and probabilistic decision-making models. Bargaining strategies and linear programming tools are covered, as well. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

- Thematic Area Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

Seventh Semester

AT 41200 - Aviation Finance

Credit Hours: 3.00. The course will focus on the financial knowledge needed to operate and evaluate aviation businesses. Content will cover the impact of financial decisions on operational outcomes that add/decrease value to an aviation company's bottom line. Case studies will be utilized to demonstrate practical aspects of financial decisions as they relate to organizational performance and profitability. Typically offered Fall Spring Summer.

AT 48100 - Aviation Safety Problems

Credit Hours: 3.00. This course provides the opportunity for students to study problems associated with aviation safety. Particular attention will be given to the formulation of specific recommendations for improvements in aviation safety. Typically offered Fall Spring.

- Aviation Management Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

Eighth Semester

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Aviation Management Selective - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

15 Credits

Note

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Professional Flight Technology, BS

About the Program

Purdue offers a bachelor's degree in professional flight that provides you with a larger perspective of the aviation industry. Your classes range from how an airplane is built to decision-making in the airline industry. You will learn by flying in our state-of-art fleet and matching simulators, and from aviation professionals with significant industry experience. The School of Aviation and Transportation Technology encourages you to obtain the highest level of medical and student certificates possible during your time at Purdue.

[Flight \(Professional Flight Technology\) Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Professional Flight Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

AVFT

120 credits for graduation

Departmental/Program Major Courses (112 credits)

Required Major Courses (60 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn

terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

AT 14500 - Private Pilot Flight

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for the FAA Private Pilot Certificate under Part 61 of the Federal Aviation Regulations. Permission of Department required. Typically offered Spring Fall Summer.

AT 14502 - Private Pilot Flight Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for

the FAA Private Pilot Certificate under Part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

AT 21000 - Ground Trainer I

Credit Hours: 1.00. Included in this course are maneuvers to develop basic attitude instrument flying skills. The student then proceeds into tracking, holding, and approach procedures. Intersection holding and arc flying will also be covered. Permission of department required. Typically offered Fall Spring Summer.

AT 21100 - Ground Trainer II

Credit Hours: 1.00. This course is a continuation of Ground Trainer I. The student will continue work on VOR, ADF, and ILS holding and approaches. Additionally, there will be a minimum of three instrument cross-countries flown in the ground trainer. The final portion of the course will be to increase the proficiency level of instrument flying in preparation for the Instrument Rating Flight test. Permission of department required. Typically offered Fall Spring Summer.

AT 22300 - Human Factors For Flight Crews

Credit Hours: 3.00. This course explores the fundamental concepts of single pilot and multi-crew human factors issues. The first part of the course focuses on the physiological factors that affect single pilot aeronautical decision-making. The second part examines human error, threat and error management, and domains of crew resources management. The third segment utilizes team-building exercises, case study presentations, and a formal assignment to emphasize course learning outcomes. Typically offered Fall Spring Summer.

AT 24300 - Commercial Flight I

Credit Hours: 2.00. The course is designed to develop a higher degree of coordination and judgment through additional experience in more advanced flight maneuvers and cross-country flying. Permission of department required. Typically offered Fall Spring Summer.

AT 24302 - Commercial Flight I Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is designed to develop a higher degree of coordination and judgment through additional experience in more advanced flight maneuvers and cross-country flying under part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

AT 24800 - Commercial Flight II

Credit Hours: 2.00. The course is a continuation of the flight training received in AT 24300. Basic instrument flying techniques

will be introduced to further enhance and refine the development of precision flying skills. Permission of department required. Typically offered Fall Spring Summer.

AT 24802 - Commercial Flight II Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is a continuation of the flight training received in FAR 141 Commercial Flight I. Basic instrument flying techniques will be introduced to further enhance and refine the development of precision flying skills. Permission of department required. Typically offered Fall Spring Summer.

AT 24900 - Instrument Flight Lectures

Credit Hours: 3.00. A study of the operation of flight instruments and radio navigation aids, federal aviation regulations pertinent to instrument flight, meteorology, instrument charts, instrument flight planning, and air traffic control procedures. Preparation for the FAA Instrument Rating written examination. Typically offered Fall Spring Summer.

AT 25300 - Instrument Flight

Credit Hours: 2.00. The course is designed to prepare the student for the FAA Commercial Pilot Certificate and Instrument Rating. Flight, ground pilot trainer, and ground instruction are included. Permission of department required. Typically offered Fall Spring Summer.

AT 25302 - Instrument Flight Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is designed to prepare the student for the FAA Commercial Pilot Certificate and Instrument Rating under Part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

AT 25400 - Commercial Flight Lectures

Credit Hours: 3.00. The course is designed to review the principles of flight, aircraft systems, pertinent federal aviation regulations, and airman publications and service in order to prepare the student for the FAA Commercial Pilot written examination. Typically offered Fall Spring Summer.

AT 32501 - Advanced Aviation Meteorology

Credit Hours: 3.00. This course is designed for students who are preparing for careers as professional pilots or dispatchers and require an advanced knowledge of the impact of weather on aviation operations. Typically offered Fall Spring Summer.

AT 32700 - Advanced Transport Flight Operations

Credit Hours: 3.00. This course addresses advanced aviation topics to include high speed aerodynamics, automated cockpit instrumentation, domestic/international flight operations, and global navigation. Typically offered Summer Fall Spring.

AT 35300 - Multi-Engine Flight

Credit Hours: 1.00. This course prepares the student for the FAA multi-engine rating. Dual flight instruction is conducted in a multi-engine aircraft. Individual ground instruction will be arranged. Typically offered Fall Spring Summer.

AT 35400 - Turbine Flight Operations Lecture

Credit Hours: 2.00. A study of corporate aircraft systems and operations and an orientation to operational procedures. Typically offered Fall Spring Summer.

AT 38800 - Large Aircraft Systems

Credit Hours: 3.00. This course introduces transport aircraft limitations, systems, and systems operation. Topics include turbojet aircraft powerplants, flight instruments, electrical power, air-conditioning, pressurization, hydraulic, and flight control systems. Emphasis is aircraft and systems manufacturer's design and operational philosophies. Typically offered Fall Spring Summer.

AT 39500 - Turbine Aircraft Simulation Laboratory

Credit Hours: 1.00. This course is a laboratory flight experience in a turbine aircraft flight simulator, emphasizing normal and abnormal aircraft operations. Emphasis is on FAA-required flight procedures for pilot certification and safe operation of turbine-powered aircraft. Students seeking an FAA type rating must receive a grade of at least a B- in AT 35300. Permission of department required. Typically offered Fall Spring Summer.

AT 39600 - Turbine Aircraft Flight Laboratory

Credit Hours: 1.00. This course is a laboratory flight experience in a turbine-powered aircraft, emphasizing normal and abnormal aircraft operations. Emphasis is on FAA-required flight procedures for certification and safe operation of turbine-powered aircraft. Permission of department required. Typically offered Fall Spring Summer.

AT 41600 - Airline Indoctrination

Credit Hours: 2.00. This course provides the background knowledge required to serve as a crewmember operating a transport-

category airplane. Topics include aircraft systems, airline operations, and FAR Part 121 regulations. Typically offered Fall Spring Summer.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

AT 48700 - Transport Aircraft Simulation Laboratory

Credit Hours: 2.0. This is a laboratory course conducted in a turbine-type aircraft simulator. This course emphasizes normal instrument and aircraft procedures as well as aircraft systems and cockpit resource management. Permission of department required. Typically offered Fall Spring Summer.

- Globalization - Credit Hours: 0.00

Other Departmental /Program Course Requirements (52 credits)

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and

interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

Electives (8 credits)

- Free Electives - Credit Hours: 8.00

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

(201610)

Fall 1st Year

First Semester

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 14500 - Private Pilot Flight

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for the FAA Private Pilot Certificate under Part 61 of the Federal Aviation Regulations. Permission of Department required. Typically offered Spring Fall Summer.

AT 14502 - Private Pilot Flight Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for the FAA Private Pilot Certificate under Part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Composition Selective - Credit Hours: 3.00

16 Credits

Spring 1st Year

Second Semester

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 24300 - Commercial Flight I

Credit Hours: 2.00. The course is designed to develop a higher degree of coordination and judgment through additional

experience in more advanced flight maneuvers and cross-country flying. Permission of department required. Typically offered Fall Spring Summer.

AT 24302 - Commercial Flight I Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is designed to develop a higher degree of coordination and judgment through additional experience in more advanced flight maneuvers and cross-country flying under part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Calculus Selective - Credit Hours: 3.00

14 Credits

Fall 2nd Year

Third Semester

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 21000 - Ground Trainer I

Credit Hours: 1.00. Included in this course are maneuvers to develop basic attitude instrument flying skills. The student then proceeds into tracking, holding, and approach procedures. Intersection holding and arc flying will also be covered. Permission of department required. Typically offered Fall Spring Summer.

AT 22300 - Human Factors For Flight Crews

Credit Hours: 3.00. This course explores the fundamental concepts of single pilot and multi-crew human factors issues. The first part of the course focuses on the physiological factors that affect single pilot aeronautical decision-making. The second part examines human error, threat and error management, and domains of crew resources management. The third segment utilizes team-building exercises, case study presentations, and a formal assignment to emphasize course learning outcomes. Typically offered Fall Spring Summer.

AT 24800 - Commercial Flight II

Credit Hours: 2.00. The course is a continuation of the flight training received in AT 24300. Basic instrument flying techniques will be introduced to further enhance and refine the development of precision flying skills. Permission of department required. Typically offered Fall Spring Summer.

AT 24802 - Commercial Flight II Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is a continuation of the flight training received in FAR 141 Commercial Flight I. Basic instrument flying techniques will be introduced to further enhance and refine the development of precision flying skills. Permission of department required. Typically offered Fall Spring Summer.

AT 24900 - Instrument Flight Lectures

Credit Hours: 3.00. A study of the operation of flight instruments and radio navigation aids, federal aviation regulations pertinent to instrument flight, meteorology, instrument charts, instrument flight planning, and air traffic control procedures. Preparation for the FAA Instrument Rating written examination. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

Fourth Semester

- Behavioral / Social Science Selective - Credit Hours: 3.00

AT 21100 - Ground Trainer II

Credit Hours: 1.00. This course is a continuation of Ground Trainer I. The student will continue work on VOR, ADF, and ILS holding and approaches. Additionally, there will be a minimum of three instrument cross-countries flown in the ground trainer. The final portion of the course will be to increase the proficiency level of instrument flying in preparation for the Instrument Rating Flight test. Permission of department required. Typically offered Fall Spring Summer.

AT 25300 - Instrument Flight

Credit Hours: 2.00. The course is designed to prepare the student for the FAA Commercial Pilot Certificate and Instrument Rating. Flight, ground pilot trainer, and ground instruction are included. Permission of department required. Typically offered Fall Spring Summer.

AT 25302 - Instrument Flight Under Federal Aviation Regulations Part 141

Credit Hours: 2.00. This course is designed to prepare the student for the FAA Commercial Pilot Certificate and Instrument Rating under Part 141 of the Federal Aviation Regulations. Permission of department required. Typically offered Fall Spring Summer.

AT 25400 - Commercial Flight Lectures

Credit Hours: 3.00. The course is designed to review the principles of flight, aircraft systems, pertinent federal aviation regulations, and airman publications and service in order to prepare the student for the FAA Commercial Pilot written examination. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Humanities Foundational Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

Fifth Semester

AT 35300 - Multi-Engine Flight

Credit Hours: 1.00. This course prepares the student for the FAA multi-engine rating. Dual flight instruction is conducted in a multi-engine aircraft. Individual ground instruction will be arranged. Typically offered Fall Spring Summer.

AT 35400 - Turbine Flight Operations Lecture

Credit Hours: 2.00. A study of corporate aircraft systems and operations and an orientation to operational procedures. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Foundational Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

14 Credits

Spring 3rd Year

Sixth Semester

AT 32700 - Advanced Transport Flight Operations

Credit Hours: 3.00. This course addresses advanced aviation topics to include high speed aerodynamics, automated cockpit instrumentation, domestic/international flight operations, and global navigation. Typically offered Summer Fall Spring.

AT 38800 - Large Aircraft Systems

Credit Hours: 3.00. This course introduces transport aircraft limitations, systems, and systems operation. Topics include turbojet aircraft powerplants, flight instruments, electrical power, air-conditioning, pressurization, hydraulic, and flight control systems. Emphasis is aircraft and systems manufacturer's design and operational philosophies. Typically offered Fall Spring Summer.

AT 39500 - Turbine Aircraft Simulation Laboratory

Credit Hours: 1.00. This course is a laboratory flight experience in a turbine aircraft flight simulator, emphasizing normal and abnormal aircraft operations. Emphasis is on FAA-required flight procedures for pilot certification and safe operation of turbine-powered aircraft. Students seeking an FAA type rating must receive a grade of at least a B- in AT 35300. Permission of department required. Typically offered Fall Spring Summer.

AT 32501 - Advanced Aviation Meteorology

Credit Hours: 3.00. This course is designed for students who are preparing for careers as professional pilots or dispatchers and require an advanced knowledge of the impact of weather on aviation operations. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

AT 47500 - Aviation Law

Credit Hours: 3.00. A study of the fundamental legal and aviation law principles as they apply to the various participants in the aviation industry. Special emphasis is placed on contemporary aviation law issues such as pilot, flight instructor, and mechanic liability; product liability; and aviation insurance. Typically offered Fall Spring.

16 Credits

Fall 4th Year

Seventh Semester

AT 39600 - Turbine Aircraft Flight Laboratory

Credit Hours: 1.00. This course is a laboratory flight experience in a turbine-powered aircraft, emphasizing normal and abnormal aircraft operations. Emphasis is on FAA-required flight procedures for certification and safe operation of turbine-powered aircraft. Permission of department required. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

Eighth Semester

AT 41600 - Airline Indoctrination

Credit Hours: 2.00. This course provides the background knowledge required to serve as a crewmember operating a transport-category airplane. Topics include aircraft systems, airline operations, and FAR Part 121 regulations. Typically offered Fall Spring Summer.

AT 48700 - Transport Aircraft Simulation Laboratory

Credit Hours: 2.0. This is a laboratory course conducted in a turbine-type aircraft simulator. This course emphasizes normal instrument and aircraft procedures as well as aircraft systems and cockpit resource management. Permission of department required. Typically offered Fall Spring Summer.

AT 49800 - Aviation Technology Capstone

Credit Hours: 3.00. The Aviation Technology Capstone course encourages teamwork in small groups on a substantial project. The intent of this course is to provide a capstone experience that integrates the material and previous experience of the student's curriculum. It also provides an opportunity for students to recognize and evaluate the interrelationship of their general education courses with the courses taken for their major. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 4.00
- Globalization - Credit Hours: 0.00

14 Credits

Note

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Unmanned Aerial Systems, BS

About the Program

Drones, or unmanned aircraft, will be soon be part of everyday life. Companies who adopt the technology will need experts to help them navigate flight paths as well as rules and regulations. A major in unmanned aerial systems (UAS) will equip you to be a leader in this new career field. In fact, the Association for Unmanned Vehicle Systems International believes 70,000 new jobs will be created in the three years after unmanned aircraft are integrated into the U.S. airspace system.

Unmanned Aerial Systems Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Unmanned Aerial Systems include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

AUAS

120 credits for graduation

Departmental/Program Major Courses (111 credits)

Required Major Courses (59 credits)

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 10900 - Unmanned Aerial Systems Design And Construction

Credit Hours: 3.00. A study of the materials and their properties utilized in aircraft structures and powerplants. The basic processes involved in the design, testing, and utilization of such materials in unmanned vehicles will be discussed. This includes aerospace materials and their properties, computer aided design, engineering drawings, aircraft structural concepts, aircraft design concepts, metallic and composite materials, aircraft loads and stresses, and aerodynamics. Typically offered Fall Spring Summer.

AT 11900 - Unmanned Aerial Systems Inspection And Repair

Credit Hours: 3.00. Inspection of UAS components and structures as well as airworthy repairs to such components are studied including common metallic and composite materials used in aircraft. This includes the study of design, fabrication, final assembly, and testing as well as inspection of flight control systems, landing gear, fuel systems, wheels, and rotor systems. Nondestructive testing methods used to evaluate the structural integrity of airframes, engines, and components will also be covered. Typically offered Fall Spring Summer.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

AT 14500 - Private Pilot Flight

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for

the FAA Private Pilot Certificate under Part 61 of the Federal Aviation Regulations. Permission of Department required. Typically offered Spring Fall Summer.

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 20900 - Civilian Unmanned Aerial Systems

Credit Hours: 3.00. This course introduces fundamental concepts of unmanned aerial vehicles. Topics include: history, airframe and powerplant selection, regulations governing unmanned systems, airspace descriptions, safety, autonomous system programming and calibration, data package options, weather, system maintenance and repair, manual flight training, first person viewer flight (FPV), flight simulator use, as well as aerodynamics and flight controls for autonomous aircraft. Typically offered Fall Spring Summer.

AT 21000 - Ground Trainer I

Credit Hours: 1.00. Included in this course are maneuvers to develop basic attitude instrument flying skills. The student then proceeds into tracking, holding, and approach procedures. Intersection holding and arc flying will also be covered. Permission of department required. Typically offered Fall Spring Summer.

AT 21100 - Ground Trainer II

Credit Hours: 1.00. This course is a continuation of Ground Trainer I. The student will continue work on VOR, ADF, and ILS holding and approaches. Additionally, there will be a minimum of three instrument cross-countries flown in the ground trainer. The final portion of the course will be to increase the proficiency level of instrument flying in preparation for the Instrument Rating Flight test. Permission of department required. Typically offered Fall Spring Summer.

AT 21900 - Unmanned Aerial Systems Design, Build, Test

Credit Hours: 3.00. This course will further develop skills, and understanding of small aerial systems. Emphasis will be on

design, selection, construction, flight test, evaluation, and repair, of stabilized unmanned aircraft. Emphasis will be placed on advancing manual flight control skills utilizing an advanced simulator and student constructed rotorcraft. Typically offered Fall Spring Summer.

AT 28600 - National Airspace Systems Operations

Credit Hours: 3.00. An introduction to the technical procedures involved in operating unmanned Aerial Systems in the air traffic control system. Flight operations and procedures will be covered. Weather theory and flight regulations as they apply to UAS operations will also be discussed. Typically offered Fall Spring Summer.

AT 30900 - Unmanned Autonomous Aerial Systems

Credit Hours: 3.00. This course includes the construction and flight test demonstration of fully autonomous aircraft. System performance will be monitored in real time. Post flight analysis, with system performance evaluation and optimization will be covered. Typically offered Fall Spring Summer.

AT 31900 - Unmanned Aerial Systems Applications, Data And Documentation

Credit Hours: 3.00. Focused on applying unmanned aerial technology to specific data gathering missions. Camera types, mounting selection, and control will be demonstrated. Emphasis will be placed on tailoring the flight profile and payload to specific missions. Post flight analysis will be used to determine payload and aircraft system performance. All specifications and procedures will be documented in an industry accepted format. Typically offered Fall Spring Summer.

AT 40900 - Unmanned Aerial Systems Capstone I

Credit Hours: 3.00. A demonstration of the cumulative knowledge and skills learned in previous UAS courses. A specific application will be selected with a custom designed or modified autonomous aircraft that will be designed and constructed to be operated on a mission specific task. Typically offered Fall Spring Summer.

AT 41901 - Unmanned Aerial Systems Capstone II

Credit Hours: 3.0. The conclusion and demonstration of the cumulative knowledge and skills learned in AT 40900. An application specific autonomous aircraft designed will be constructed and flown within mission specific specifications. Data gathered will be analyzed and documented. Typically offered Fall Spring Summer.

- UAS Related Selectives - Credit Hours: 11.00
- Globalization - Credit Hours: 0.00

Other Departmental /Program Course Requirements (52 credits)

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 22100 - Calculus For Technology I

Credit Hours: 3.00. MA 22100-MA 22200 is a two-semester sequence in the technique of calculus for students enrolled in certain technical curricula. Not available for credit toward graduation in the School of Science. Prerequisite: demonstrated competence in algebra and trigonometry. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

- Humanities Foundational Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Science Foundational Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Technical Communications Selective - Credit Hours: 3.00
- Any University-approved minor or departmentally-approved thematic area of study - Credit Hours: 12.00

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

Electives (9 credits)

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Quantitative Reasoning - UCC Calculus Selective

Program Requirements

Fall 1st Year

AT 10000 - Introduction To Aviation Technology

Credit Hours: 1.00. An introduction to the Department of Aviation Technology and its curricula as well as an overview of the aviation industry and associated careers. Aviation safety practices and human factors issues are discussed. An overview of aviation regulations and the regulatory process is included. Typically offered Fall Spring Summer.

AT 10900 - Unmanned Aerial Systems Design And Construction

Credit Hours: 3.00. A study of the materials and their properties utilized in aircraft structures and powerplants. The basic processes involved in the design, testing, and utilization of such materials in unmanned vehicles will be discussed. This includes aerospace materials and their properties, computer aided design, engineering drawings, aircraft structural concepts, aircraft design concepts, metallic and composite materials, aircraft loads and stresses, and aerodynamics. Typically offered Fall Spring Summer.

AT 14400 - Private Pilot Lectures

Credit Hours: 4.00. A study of the subject areas and information needed to operate as a private pilot in the aviation environment. The FAA private pilot written exam will be offered to those who qualify. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

AT 10200 - Aviation Business

Credit Hours: 3.00. A discussion of the financial structure and operation of the aviation industry including aircraft and aerospace design parameters, as well as aviation financial and industrial processes. The course will cover material relevant to the overall structure of the aviation industry including history, current status of aerospace manufacturers, commercial airlines, and general aviation as well as governmental aviation agencies and international aviation. Commercialization of space and current issues in aviation will also be covered. Typically offered Fall Spring Summer.

AT 10300 - Aerospace Vehicle Propulsion And Tracking Systems

Credit Hours: 3.00. This course is an introduction to propulsion systems used in aerospace vehicles. The student will learn terminology, component parts, and operational theory of propulsion systems. Course topics covered are reciprocating and turbine engine operation theory as well as rocket propulsion systems. including electrical, fuel, fire, ignition and lubrication. Operational and regulatory fuel requirements are discussed. Emerging technologies and environmental practices will be explored. Typically offered Fall Spring Summer.

AT 11900 - Unmanned Aerial Systems Inspection And Repair

Credit Hours: 3.00. Inspection of UAS components and structures as well as airworthy repairs to such components are studied including common metallic and composite materials used in aircraft. This includes the study of design, fabrication, final assembly, and testing as well as inspection of flight control systems, landing gear, fuel systems, wheels, and rotor systems. Nondestructive testing methods used to evaluate the structural integrity of airframes, engines, and components will also be covered. Typically offered Fall Spring Summer.

AT 14500 - Private Pilot Flight

Credit Hours: 2.00. In this course, the student will receive the necessary dual flight instruction and solo flight time to qualify for the FAA Private Pilot Certificate under Part 61 of the Federal Aviation Regulations. Permission of Department required. Typically offered Spring Fall Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Calculus Selective - Credit Hours: 3.00

17 Credits

Fall 2nd Year

AT 20300 - Aviation Operations Management

Credit Hours: 3.00. This course provides a forum for investigating contemporary issues facing the aviation and aerospace industries. Major topics include aviation operation, human resources, fiscal, and technology management. Typically offered Fall Spring Summer.

AT 20900 - Civilian Unmanned Aerial Systems

Credit Hours: 3.00. This course introduces fundamental concepts of unmanned aerial vehicles. Topics include: history, airframe and powerplant selection, regulations governing unmanned systems, airspace descriptions, safety, autonomous system programming and calibration, data package options, weather, system maintenance and repair, manual flight training, first person viewer flight (FPV), flight simulator use, as well as aerodynamics and flight controls for autonomous aircraft. Typically offered Fall Spring Summer.

AT 21000 - Ground Trainer I

Credit Hours: 1.00. Included in this course are maneuvers to develop basic attitude instrument flying skills. The student then proceeds into tracking, holding, and approach procedures. Intersection holding and arc flying will also be covered. Permission of department required. Typically offered Fall Spring Summer.

AT 28600 - National Airspace Systems Operations

Credit Hours: 3.00. An introduction to the technical procedures involved in operating unmanned Aerial Systems in the air traffic control system. Flight operations and procedures will be covered. Weather theory and flight regulations as they apply to UAS operations will also be discussed. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

14 Credits

Spring 2nd Year

AT 20200 - Aerospace Vehicle Systems Design, Analysis And Operations

Credit Hours: 3.00. Introduction to the design and engineering analysis of various systems found on modern aircraft and aerospace vehicles. Operational theory will also be presented for specific aircraft. Systems include electric power distribution, digital data, instrumentation, hydraulic, pneumatic, environmental, flight management, and autoflight. Typically offered Fall Spring Summer.

AT 21100 - Ground Trainer II

Credit Hours: 1.00. This course is a continuation of Ground Trainer I. The student will continue work on VOR, ADF, and ILS holding and approaches. Additionally, there will be a minimum of three instrument cross-countries flown in the ground trainer. The final portion of the course will be to increase the proficiency level of instrument flying in preparation for the Instrument Rating Flight test. Permission of department required. Typically offered Fall Spring Summer.

AT 21900 - Unmanned Aerial Systems Design, Build, Test

Credit Hours: 3.00. This course will further develop skills, and understanding of small aerial systems. Emphasis will be on design, selection, construction, flight test, evaluation, and repair, of stabilized unmanned aircraft. Emphasis will be placed on advancing manual flight control skills utilizing an advanced simulator and student constructed rotorcraft. Typically offered Fall Spring Summer.

- Humanities Foundational Selective - Credit Hours: 3.00
- Science Foundational Selective - Credit Hours: 3.00
- English Composition Selective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

AT 30900 - Unmanned Autonomous Aerial Systems

Credit Hours: 3.00. This course includes the construction and flight test demonstration of fully autonomous aircraft. System performance will be monitored in real time. Post flight analysis, with system performance evaluation and optimization will be covered. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic

probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- UAS Related Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Behavioral/Social Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

AT 31900 - Unmanned Aerial Systems Applications, Data And Documentation

Credit Hours: 3.00. Focused on applying unmanned aerial technology to specific data gathering missions. Camera types, mounting selection, and control will be demonstrated. Emphasis will be placed on tailoring the flight profile and payload to specific missions. Post flight analysis will be used to determine payload and aircraft system performance. All specifications and procedures will be documented in an industry accepted format. Typically offered Fall Spring Summer.

- UAS Related Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Economics Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

AT 40900 - Unmanned Aerial Systems Capstone I

Credit Hours: 3.00. A demonstration of the cumulative knowledge and skills learned in previous UAS courses. A specific application will be selected with a custom designed or modified autonomous aircraft that will be designed and constructed to be operated on a mission specific task. Typically offered Fall Spring Summer.

- UAS Related Selective - Credit Hours: 3.00
- Thematic Area Selective - Credit Hours: 3.00
- Advanced English Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

AT 41901 - Unmanned Aerial Systems Capstone II

Credit Hours: 3.0. The conclusion and demonstration of the cumulative knowledge and skills learned in AT 40900. An application specific autonomous aircraft designed will be constructed and flown within mission specific specifications. Data gathered will be analyzed and documented. Typically offered Fall Spring Summer.

- Thematic Area Selective - Credit Hours: 3.00
- UAS Related Selective - Credit Hours: 2.00
- Technical Communication Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Globalization - Credit Hours: 0.00

14 Credits

Notes

Purdue policy states that a student may attempt a course no more than three times. An attempt is defined as all courses displayed on a student transcript having grades of (including, but not limited to) A, B, C, D, E, F, W, WF, I and IF.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Airframe & Powerplant Maintenance

Effective Fall 2016

12 credit hours required for minor.

Minor Requirements

AT 36302 - Fundamentals Of Powerplant Systems

Credit Hours: 3.00. This course covers powerplant systems, including fuel metering devices, ignition systems, and propeller and propeller-related systems. Students learn to use the special tools required for these systems, and the processes for inspection, repair, and overhaul. Airworthiness evaluation and determination is stressed, as are testing and fault diagnosis procedures. The properties and operating characteristics of aircraft fuels are also covered. Typically offered Fall Spring Summer.

AT 37200 - Aircraft Maintenance Practices

Credit Hours: 3.00. An in-depth study of practices and procedures used to ensure that an aircraft is maintained in an airworthy state. Aircraft publications and maintenance methodology are emphasized. Typically offered Fall Spring.

AT 40200 - Aircraft Airworthiness Assurance

Credit Hours: 3.00. Practicum in performing aircraft maintenance and inspection to airworthiness standards for large aircraft, incorporating Quality and Safety Management Systems into maintenance operations, planning and executing maintenance on large aircraft and managing technical teams. Typically offered Fall Spring.

AT 47200 - Advanced Composite Technology

Credit Hours: 3.00. Students will perform a variety of fabrication, testing, and repair tasks using specialized composite fibers, matrices, and core materials. Typically offered Fall Spring Summer.

12 credits

Unmanned Aerial Systems Minor

Effective Fall 2016

15 credits required for minor

Requirements for the Minor

AT 20900 - Civilian Unmanned Aerial Systems

Credit Hours: 3.00. This course introduces fundamental concepts of unmanned aerial vehicles. Topics include: history, airframe and powerplant selection, regulations governing unmanned systems, airspace descriptions, safety, autonomous system programming and calibration, data package options, weather, system maintenance and repair, manual flight training, first person viewer flight (FPV), flight simulator use, as well as aerodynamics and flight controls for autonomous aircraft. Typically offered Fall Spring Summer.

AT 21900 - Unmanned Aerial Systems Design, Build, Test

Credit Hours: 3.00. This course will further develop skills, and understanding of small aerial systems. Emphasis will be on design, selection, construction, flight test, evaluation, and repair, of stabilized unmanned aircraft. Emphasis will be placed on advancing manual flight control skills utilizing an advanced simulator and student constructed rotorcraft. Typically offered Fall Spring Summer.

AT 28600 - National Airspace Systems Operations

Credit Hours: 3.00. An introduction to the technical procedures involved in operating unmanned Aerial Systems in the air traffic control system. Flight operations and procedures will be covered. Weather theory and flight regulations as they apply to UAS operations will also be discussed. Typically offered Fall Spring Summer.

AT 30900 - Unmanned Autonomous Aerial Systems

Credit Hours: 3.00. This course includes the construction and flight test demonstration of fully autonomous aircraft. System performance will be monitored in real time. Post flight analysis, with system performance evaluation and optimization will be covered. Typically offered Fall Spring Summer.

AT 31900 - Unmanned Aerial Systems Applications, Data And Documentation

Credit Hours: 3.00. Focused on applying unmanned aerial technology to specific data gathering missions. Camera types, mounting selection, and control will be demonstrated. Emphasis will be placed on tailoring the flight profile and payload to specific missions. Post flight analysis will be used to determine payload and aircraft system performance. All specifications and procedures will be documented in an industry accepted format. Typically offered Fall Spring Summer.

15 credits

School of Construction Management Technology

Overview

Purdue University's School of Construction Management Technology offers a bachelor's degrees accredited by the American Council for Construction Education, awarded for the high level of educational experience and quality provided. One of the strengths of the program comes from the hands-on learning that provides applicable experience in a real-world environment. A part of this experience comes from the minimum 800 hours of construction experience that each undergraduate student is required to complete prior to graduation. Because of its history and leadership within the industry, the school benefits from an extensive list of industry partners.

Faculty

<https://polytechnic.purdue.edu/departments/building-construction-management/directory>

Contact Information

Building Construction Management Department

Knoy Hall, Room 453
401 N. Grant St.
West Lafayette, IN 47907
Phone: 765.494.2459
Email: cminfo@purdue.edu

Graduate Information

For Graduate Information please see Building Construction Management Graduate Program Information.

Building Construction Management Technology, BS

About the Program

From the world's tallest building to the home being constructed down the block, all construction projects need leadership and management expertise. In Purdue's construction management program, you'll gain skills to be a leader in the growing global construction industry. You'll learn what it takes to successfully build all kinds of projects from idea to completion. The curriculum can prepare you to be a future executive in this increasingly fast-paced and high-tech sector.

[Construction Management Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Building Construction Management include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICM-BS

120 Credits

"C-" or better required in all major courses and all courses that are a prerequisite to a BCM course

Building Construction Management Major Courses (59 credits)

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

BCM Elective (3 credits)

Any other BCM class for BCM Majors or

CGT 36000 - Applications Of Construction Documentation I

Credit Hours: 3.00. Standards applied to the creation and distribution of documentation within the construction enterprise. Construction documents are created as products of a computer model. Residential modeling is followed by an introduction to light commercial documentation. Topics include a study of blueprint reading and 5D building information modeling (BIM) estimation of material extracted from a model. Typically offered Summer Fall Spring.

CGT 46000 - Building Information Modeling For Commercial Construction

Credit Hours: 3.00. The study of commercial jobsite planning and coordination. Trade coordination, visualization, and communication are emphasized. Activities include collision detection reports, construction animations, and professional presentations. Typically offered Summer Fall Spring.

CGT 46200 - Applications Of Construction Documentation II

Credit Hours: 3.00. Creating, archiving, integrating, qualifying and utilizing computer-generated, three-dimensional architectural models in a light commercial construction enterprise. Topics include components of MEP, fire protection, blueprint reading and 4D BIM scheduling. Credit cannot be obtained for both CGT 36200 and CGT 46200. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (58 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

- Human Foundations Elective (satisfies Human Culture - Humanities for core) see approved list at <http://www.purdue.edu/provost/initiatives/curriculum/course.html> - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Lab Selective (satisfies second Science Selective for core)- See Approved BCM List - Credit Hours: 4.00
- English First Year Composition Selective: See list of approved selectives) (satisfies Written Communication for core) - Credit Hours: 3.00

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit

toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

English selective (3 credits)

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

ENGL 49000 - Worksite Internship Practicum

Credit Hours: 1.00 to 3.00. Course facilitates the transition between an English undergraduate degree and the workplace or professional life. The course has two components: a professor-guided component and a practicum component in a chosen area. Permission of instructor required. Typically offered Summer Fall Spring.

ENGL 30400 - Advanced Composition

Credit Hours: 3.00. Designed for students who wish additional training in composition beyond the basic requirements. Extensive practice in the writing of mature expository, critical, and argumentative prose. (The course satisfies the Indiana certification requirement of three hours of advanced composition.). Typically offered Fall Spring Summer.

Business Selective (3 credits)

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT

30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

MGMT 32300 - Principles Of Marketing

Credit Hours: 3.00. This mixed lecture and case course provides an overview of the functional area of marketing. The course is taught from a managerial perspective; it focuses on inputs to the marketing decision-making process, the process itself, and its results. No credit for students in the School of Management, except economics majors. Typically offered Fall Spring.

MGMT 20100 - Management Accounting I

Credit Hours: 3.00. An introduction to management's internal use of accounting information--for decision making, production management, product costing, motivating and evaluating performance, and budgeting. Typically offered Fall Spring Summer. CCN:IPO 1802 Accounting II

MGMT 44301 - Management Of Human Resources

Credit Hours: 3.00. Survey of theory and techniques used in human resource management within organizations. Emphasis is placed on legal concerns, human resource staffing and development, reward systems, and the role of unions in American society. Techniques studied include job analysis, the use of various recruitment and selection procedures, compensation, administration, and collective bargaining. No credit for students in the School of Management. Typically offered Fall Spring.

Communication Selective (3 credits)

AGEC 33100 - Principles Of Selling In Agricultural Business

Credit Hours: 3.00. The principles of salesmanship and their application to the agricultural business. Topics include attitudes and value systems, basic behavioral patterns, the purchase decision process, relationship of sales to marketing, selling strategies, preparing for sales calls, making sales presentations, handling objections, and closing sales. Emphasis is placed on application of principles to real-world situations and on building selling skills through class projects. Requires class trips. Students will pay individual lodging or meal expenses when necessary. Typically offered Fall Spring.

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 31800 - Principles Of Persuasion

Credit Hours: 3.00. Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classical and modern approaches. Both theoretical and pragmatic considerations are introduced. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32400 - Introduction To Organizational Communication

Credit Hours: 3.00. An introduction to fundamental concepts and basic research related to communication behavior in organizational settings. Units cover message processing, leadership communication, communication climates, communication training, and communication audits. Students participate in an organizational simulation in some sections. Typically offered Summer Fall Spring.

COM 32500 - Interviewing: Principles And Practice

Credit Hours: 3.00. Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. Typically offered Fall Spring Summer.

COM 41500 - Discussion Of Technical Problems

Credit Hours: 3.00. Principles of speech communication related to interpersonal and group discussions on technical topics and problems; practice in using these modes in situations typically encountered by technologists. Typically offered Fall Spring.

- a Foreign Language - Credit Hours: 3.00

Human Relations Selective (3 credits)

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060
Introduction To Sociology

OLS 28400 - Leadership Principles

Credit Hours: 3.00. Mastery of the basic knowledge managers need to effectively lead individual employees. Includes primary measures of performance success, leadership strategies, core leadership actions, and a comprehensive theory that explains how the strategies and actions cause positive attitudes and increased performance. Typically offered Summer Fall Spring.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for

leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

TLI 25400 - Leading Change In Technology Organizations

Credit Hours: 3.00. This course provides a framework for creating, monitoring, and leading change within technology-rich organizations. Students will learn how to be change consultants, diagnose organizational problems, identify and implement change interventions at various outcome levels (i.e. individual, group, process, and the organization as a whole), and evaluate the success of change efforts. Typically offered Fall Spring Summer.

Global Selective (3 credits)

TECH 33000 - Technology And The Global Society

Credit Hours: 3.00. The course examines the interplay of technology, globalization, and ethics. Students will explore concepts and issues related to outsourcing; global competitiveness; communications; contemporary issues; cultural differences such as inequality, security, sustainability, and quality of life; and the ethical dilemmas that often emerge as a result of the impact of technology. Typically offered Fall Spring Summer.

- Study Abroad or
- other global courses listed

Technical Elective (3 credits)

Any course within the Colleges of Technology, Engineering, Management or approved course.

Electives (3 credits)

- Free - Credit Hours: 3.00

University Core Requirements

- Human Cultures - Humanities - UCC Selective

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science #2 - See BCM's list

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

- Science, Technology & Society - TECH 12000 - Design Thinking In Technology
- Written Communication - See BCM's list

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15300 - Algebra And Trigonometry I

Credit Hours: 3.00. Exponents and radicals; algebraic and fractional expressions. Equations and inequalities, systems of linear equations. Polynomial, exponential, and logarithmic functions. Not open to students with credit in MA 15900. Not available for credit toward graduation in the School of Science. Typically offered Fall Spring Summer. CTL:IMA 1601 College Algebra

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

Program Requirements

Accredited by the American Council for Construction Education (ACCE)

Fall 1st Year

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic,

and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English First Year Composition Selective - Credit Hours: 3.00 *

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

16 Credits

Fall 2nd Year

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

- Human Relations Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Lab Science Selective - Credit Hours: 4.00 *

15 Credits

Fall 3rd Year

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

- Technical Elective - Credit Hours: 3.00

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

- Human Foundations Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil

testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

16 Credits

Fall 4th Year

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public

relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

- English Selective - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

14 Credits

Spring 4th Year

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

- Global Selective - Credit Hours: 3.00
- BCM Elective - Credit Hours: 3.00
- Business Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00

15 Credits

Note

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all BCM courses and all prerequisites for BCM courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Any course taken at Purdue can be attempted no more than three times (inclusive of W, WF, WN, and IF)

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurduePlan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Demolition & Restoration Management in the Built Environment, BS

About the Program

Not all construction work is new construction. As buildings age, as new products and techniques are adopted, and as disasters occur, a specific set of skills is needed for safely taking down structures or building them back up. When you major in demolition and restoration management in the built environment at Purdue University you will examine the common lifecycles of structures and learn new skills that will be critical after natural or man-made disasters.

Demolition and Restoration Management in the Built Environment Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Demolition and Restoration Management in the Built Environment include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIBCM-BS-DRMB

120 Credits

"C-" or better required in all major courses and all courses that are a prerequisite to a BCM course

Building Construction Management Major Courses (65 credits)

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 32000 - Introduction To Disaster Restoration And Reconstruction Management

Credit Hours: 3.00. Introductory topics in the DRR concentration are discussed; causes of disasters and dimensions of their effects, protocols, equipment, and techniques of restoration and reconstruction, including project and business management practices and imperatives of DRR contractors. Typically offered Fall Spring Summer.

BCM 33000 - Introduction To Demolition And Reconstruction Management

Credit Hours: 3.00. This course introduces the opportunities and challenges in demolition and reconstruction management. Topics include: introduction to industry regulation, project planning, labor and equipment utilization, techniques and

technologies, hazardous materials, issues involving historic properties, material reuse and recycling, safety and risk management, estimating and cost control, project feasibility, issues of ethics, and company management. Typically offered Fall Spring Summer.

BCM 33100 - Demolition And Restoration Project Management

Credit Hours: 3.00. Introductory course for managing projects in demolition and disaster restoration. Apply principles of sound project management for analysis and evaluation of common demolition and disaster restoration dilemmas. Integrate knowledge of typical subsector labor, materials, and equipment assets to plan viable solutions to common technical and management issues in demolition and disaster restoration projects. Typically offered Fall Spring Summer.

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (55 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the

macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

- Human Foundations Elective (*satisfies Human Culture - Humanities for core*) see approved list at <http://www.purdue.edu/provost/initiatives/curriculum/course.html> - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Lab Selective (*satisfies second Science Selective for core*) - See Approved BCM List - Credit Hours: 4.00
- English First Year Composition Selective (*satisfies Written Communication for core*) - See list of approved selectives - Credit Hours: 3.00

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- English selective (ENGL 42000 or ENGL 42100 or ENGL 49000 or ENGL 30400) - Credit Hours: 3.00
- Business Selective (IT 34200 or STAT 30100 or STAT 22500 or ENTR 20000 or MGMT 32300 or MGMT 20100 or MGMT 44301) - Credit Hours: 3.00
- Communication Selective (AGEC 33100 or COM 31400 or COM 31500 or COM 31800 or COM 32000 or COM 32400 or COM 32500 or COM 41500 or a Foreign Language) - Credit Hours: 3.00
- Human Relations Selective (PSY 12000 or SOC 10000 or TLI 11200 or OLS 28400 or TLI 25400) - Credit Hours: 3.00
- Global Selective (TECH 33000, Study Abroad, or other global courses listed) - Credit Hours: 3.00

University Core Requirements

- Human Cultures - Humanities - UCC Selective
- Human Cultures - Behavioral/Social Science - ECON 21000 or AGECE 21700
- Information Literacy - TECH 12000
- Science #1 - PHYS 21800
- Science #2 - See BCM's list
- Science, Technology & Society - BCM 10001 or TECH 12000
- Written Communication - See BCM's list
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15300 or MA 15800 or MA 16010

Program Requirements

Fall 1st Year

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English First Year Composition Selective - Credit Hours: 3.00 *

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

16 Credits

Fall 2nd Year

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

- Human Relations Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Lab Science Selective - Credit Hours: 4.00 *

15 Credits

Fall 3rd Year

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 32000 - Introduction To Disaster Restoration And Reconstruction Management

Credit Hours: 3.00. Introductory topics in the DRR concentration are discussed; causes of disasters and dimensions of their effects, protocols, equipment, and techniques of restoration and reconstruction, including project and business management practices and imperatives of DRR contractors. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

- Humanities Foundation Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 33000 - Introduction To Demolition And Reconstruction Management

Credit Hours: 3.00. This course introduces the opportunities and challenges in demolition and reconstruction management. Topics include: introduction to industry regulation, project planning, labor and equipment utilization, techniques and technologies, hazardous materials, issues involving historic properties, material reuse and recycling, safety and risk management, estimating and cost control, project feasibility, issues of ethics, and company management. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

16 Credits

Fall 4th Year

BCM 33100 - Demolition And Restoration Project Management

Credit Hours: 3.00. Introductory course for managing projects in demolition and disaster restoration. Apply principles of sound

project management for analysis and evaluation of common demolition and disaster restoration dilemmas. Integrate knowledge of typical subsector labor, materials, and equipment assets to plan viable solutions to common technical and management issues in demolition and disaster restoration projects. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

14 Credits

Spring 4th Year

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

- Global Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Business Selective - Credit Hours: 3.00
- Communication Elective - Credit Hours: 3.00

15 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all BCM courses and all prerequisites for BCM courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Any course taken at Purdue can be attempted no more than three times (inclusive of W, WF, WN, and IF)

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Healthcare Construction Management, BS

About the Program

From nursing homes to specialized cancer clinics, and from large hospitals to urgent care centers, construction of healthcare-related facilities requires special knowledge. When you major in healthcare construction management at Purdue University, you will study the unique features of this sector of the construction industry. With the growth of technology in the healthcare construction industry and the specialization of the work, it is important for you to understand the regulations and risks associated with these healthcare-related projects.

Healthcare Construction Management Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Healthcare Construction Management include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICM-BS-HCM

120 Credits

"C-" or better required in all major courses and all courses that are a prerequisite to a BCM course

Building Construction Management Major Courses (62 Credits)

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 34000 - Introduction To Healthcare Construction Management

Credit Hours: 3.00. This course explores the allocation and distribution of construction resources in the healthcare construction sector and an overview of current theories and research. Topics include the demand for health care, health insurance, hospitals and the services of all the possible healthcare professional stakeholders. A thorough understanding of the environment of care and all codes and standards relative to the constructors approach to this complex environment. Typically offered Fall Spring Summer.

BCM 34100 - Advanced Topics In Healthcare Construction Management

Credit Hours: 3.00. A study of all facilities used in the health-care industry, ranging from hospitals and clinics to nursing homes and laboratories, emphasizing the interrelationship of planning, design, and construction. Topics include infectious materials control, disruption avoidance, rapid technology changes, and advanced/non-typical mechanical and electrical systems. Typically offered Fall Spring Summer.

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (58 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

- Human Foundations Elective (*satisfies Human Culture - Humanities for core*) *see approved list attached* - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Lab Selective (*satisfies second Science Selective for core*) - See Approved BCM List - Credit Hours: 4.00
- English First Year Composition Selective (*satisfies Written Communication for core*) - See list of approved selectives - Credit Hours: 3.00

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law

enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- English selective (ENGL 42000 or ENGL 42100 or ENGL 49000 or ENGL 30400) - Credit Hours: 3.00
- Business Selective (IT 34200 or STAT 30100 or STAT 22500 or ENTR 20000 or MGMT 32300 or MGMT 20100 or MGMT 44301) - Credit Hours: 3.00
- Communication Selective (AGEC 33100 or COM 31400 or COM 31500 or COM 31800 or COM 32000 or COM 32400 or COM 32500 or COM 41500 or a Foreign Language) - Credit Hours: 3.00
- Human Relations Selective (PSY 12000 or SOC 10000 or OLS 28400 or TLI 11200 or TLI 25400) - Credit Hours: 3.00
- Global Selective (TECH 33000, Study Abroad, or other global courses listed) - Credit Hours: 3.00
- Healthcare Selective (AD 12500, or AD 39700, or BCM 31500, or BCM 31600, or BCM 31700, or BCM 32000, or BCM 33000, or BCM 41700, or CGT 46000, or course approved by HCM Coordinator) - Credit Hours: 3.00

University Core Requirements

- Human Cultures - Humanities - UCC Selective
- Human Cultures - Behavioral/Social Science - ECON 21000 or AGEC 21700
- Information Literacy - TECH 12000
- Science #1 - PHYS 21800
- Science #2 - See BCM's list
- Science, Technology & Society - BCM 10001 or TECH 12000
- Written Communication - See BCM's list
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15300 or MA 15800 or MA 16010

Program Requirements

Fall 1st Year

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English First Year Composition Selective - Credit Hours: 3.00 *

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of

definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

15 Credits

Fall 2nd Year

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

- Human Relations Selective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Lab Science Selective - Credit Hours: 4.00 *

15 Credits

Fall 3rd Year

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 34000 - Introduction To Healthcare Construction Management

Credit Hours: 3.00. This course explores the allocation and distribution of construction resources in the healthcare construction sector and an overview of current theories and research. Topics include the demand for health care, health insurance, hospitals and the services of all the possible healthcare professional stakeholders. A thorough understanding of the environment of care and all codes and standards relative to the constructors approach to this complex environment. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

- Humanities Foundation Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 34100 - Advanced Topics In Healthcare Construction Management

Credit Hours: 3.00. A study of all facilities used in the health-care industry, ranging from hospitals and clinics to nursing homes and laboratories, emphasizing the interrelationship of planning, design, and construction. Topics include infectious materials control, disruption avoidance, rapid technology changes, and advanced/non-typical mechanical and electrical systems. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders,

communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

- Healthcare Selective - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

15 Credits

Spring 4th Year

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained

in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

- Global Selective - Credit Hours: 3.00
- Business Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00

15 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all BCM courses and all prerequisites for BCM courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Any course taken at Purdue can be attempted no more than three times (inclusive of W, WF, WN, and IF)

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Mechanical & Electrical Construction Management, BS

About the Program

What you can't see behind a building's walls is what makes it hum. From power to pipes, and from ventilation to lighting, if these systems don't work, the building doesn't either. When you major in electrical and mechanical construction management at Purdue, you will be part of a program where you can start a construction career focused on healthcare, power, refineries or pharmaceuticals. If you need to bring liquids, gases or electricity into or out of a building, you'll need to know the ins and outs of electrical and mechanical construction management.

Mechanical and Electrical Construction Management Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Mechanical and Electrical Construction Management include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICM-BS-MECM

120 Credits

"C-" or better required in all major courses and all courses that are a prerequisite to a BCM course

Building Construction Management Major Courses (65 credits)

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 31500 - Mechanical Construction Estimating

Credit Hours: 3.00. Costs conditioned by the contract documents for building mechanical systems are studied. The course will

focus on the methods used to estimate the cost of commercial plumbing, heating, ventilating, and air conditioning systems. The course will utilize computer estimating systems. Typically offered Fall Spring.

BCM 31600 - Electrical Construction Estimating

Credit Hours: 3.00. Costs dictated by the contract documents for the electrical systems in residential, commercial, industrial, specialty, and line construction projects are studied. The course will utilize computer estimating systems. Typically offered Fall Spring.

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

BCM 41700 - Design/Build For Mep Contractors

Credit Hours: 3.00. The student will study, develop, and analyze conceptual design and conceptual estimating of mechanical, electrical, plumbing, fire protection, and specialty systems in construction. The principles of design/build construction will be applied to case studies of actual residential, commercial, industrial, and specialty construction projects. Topics include building systems, criteria and selection, economic feasibility, value engineering, customer control, and value-added construction services. Typically offered Fall Spring.

- MEP Selective (BCM 31700, BCM 51000, or BCM 58100 - Industrial Construction, or CGT 36000, CGT 46000) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (55 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

- Human Foundations Elective (satisfies Human Culture - Humanities for core) see attached approved list - Credit Hours: 3.00

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Science Lab Selective (*satisfies second Science Selective for core*)- See Approved BCM List - Credit Hours: 4.00
- English First Year Composition Selective (*satisfies Written Communication for core*) - See list of approved selectives) - Credit Hours: 3.00

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law

enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- English selective (ENGL 42000 or ENGL 42100 or ENGL 49000 or ENGL 30400) - Credit Hours: 3.00
- Business Selective (IT 34200 or STAT 30100 or STAT 22500 or ENTR 20000 or MGMT 32300 or MGMT 20100 or MGMT 44301) - Credit Hours: 3.00
- Communication Selective (AGEC 33100 or COM 31400 or COM 31500 or COM 31800 or COM 32000 or COM 32400 or COM 32500 or COM 41500 or a Foreign Language) - Credit Hours: 3.00
- Human Relations Selective (PSY 12000 or SOC 10000 or TLI 11200 or OLS 28400 or TLI 25400) - Credit Hours: 3.00
- Global Selective (TECH 33000, Study Abroad, or other global courses listed) - Credit Hours: 3.00

University Core Requirements

- Human Cultures - Humanities - UCC Selective
- Human Cultures - Behavioral/Social Science - ECON 21000 or AGECE 21700
- Information Literacy - TECH 12000
- Science #1 - PHYS 21800
- Science #2 - See BCM's list
- Science, Technology & Society - BCM 10001 or TECH 12000
- Written Communication - See BCM's list
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15300 or MA 15800 or MA 16010

Program Requirements

Fall 1st Year

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English First Year Composition Selective - Credit Hours: 3.00 *

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

16 Credits

Fall 2nd Year

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

- Human Relations Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Lab Science Selective - Credit Hours: 4.00 *

15 Credits

Fall 3rd Year

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 31500 - Mechanical Construction Estimating

Credit Hours: 3.00. Costs conditioned by the contract documents for building mechanical systems are studied. The course will focus on the methods used to estimate the cost of commercial plumbing, heating, ventilating, and air conditioning systems. The course will utilize computer estimating systems. Typically offered Fall Spring.

BCM 31600 - Electrical Construction Estimating

Credit Hours: 3.00. Costs dictated by the contract documents for the electrical systems in residential, commercial, industrial, specialty, and line construction projects are studied. The course will utilize computer estimating systems. Typically offered Fall Spring.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

- Humanities Foundation Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company

budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 41700 - Design/Build For Mep Contractors

Credit Hours: 3.00. The student will study, develop, and analyze conceptual design and conceptual estimating of mechanical, electrical, plumbing, fire protection, and specialty systems in construction. The principles of design/build construction will be applied to case studies of actual residential, commercial, industrial, and specialty construction projects. Topics include building systems, criteria and selection, economic feasibility, value engineering, customer control, and value-added construction services. Typically offered Fall Spring.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

16 Credits

Fall 4th Year

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

- MEP Selective - Credit Hours: 3.00 ♦

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

14 Credits

Spring 4th Year

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

- Global Selective - Credit Hours: 3.00
- Business Selective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00

15 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all BCM courses and all prerequisites for BCM courses.

Any course taken at Purdue can be attempted no more than three times (inclusive of W, WF, WN, and IF)

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Residential Construction Management, BS

About the Program

Construction managers in the residential construction field focus on more than building a home. They manage schedules, market their services, and negotiate with home buyers and with contractors. People skills are an important trait for these professionals in

addition to understanding the building process. From estimating to scheduling and from contractor coordination to material selection, you will build a strong foundation of knowledge to be successful in the industry.

Residential Construction Management Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Residential Construction Management include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIBCM-BS-RCM

120 Credits

"C-" or better required in all major courses and all courses that are a prerequisite to a BCM course

Building Construction Management Major Courses (61 credits)

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and

earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders, communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.

BCM 36000 - Residential Construction

Credit Hours: 3.00. A study of the best building practices in residential construction, based upon green building standards, energy star, and other national programs. Course content includes partial fulfillment of the requirements for the certified green professional designation (CGP) from the National Association of Home Builders. Typically offered Fall Spring Summer.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength,

strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 46200 - Residential Design Build

Credit Hours: 2.00. A study of the design/build project delivery system for residential construction, including home design fundamentals, construction methods, disability code requirements, building code requirements. Course content includes partial fulfillment of the requirements for the National Association of Home Builders, Certified Aging-In-Place (CAPS) designation. Typically offered Fall Spring Summer.

BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (58 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- Human Foundations Elective (satisfies Human Culture - Humanities for core) see approved list - Credit Hours: 3.00
- Science Lab Selective (satisfies second Science Selective for core)- See Approved BCM List - Credit Hours: 4.00
- English First Year Composition Selective: See list of approved selectives (satisfies Written Communication for core) - Credit Hours: 3.00
- English selective (ENGL 42000 or ENGL 42100 or ENGL 49000 or ENGL 30400)
- Business Selective (IT 34200 or STAT 30100 or STAT 22500 or ENTR 20000 or MGMT 32300 or MGMT 20100 or MGMT 44301)
- Communication Selective (AGEC 33100 or COM 31400 or COM 31500 or COM 31800 or COM 32000 or COM 32400 or COM 32500 or COM 41500 or a Foreign Language)
- Human Relations Selective (PSY 12000 or SOC 10000 or TLI 11200 or OLS 28400 or TLI 25400)
- Global Selective (TECH 33000, Study Abroad, or other global courses listed)

- Residential Selective (at least 1 credit hour from the following: AD 12500, AD 39500, AD 39700, AD 45400, AGECEC 33100, BCM 32000, BCM 33000, BCM 36100, BCM 41200, BCM 46000, BCM 51000, CGT 36000, LA 15000, LA 15100, LA 15200 the remainder of the three hours may be free electives)

Electives (1 credit)

University Core Requirements

- Human Cultures - Humanities - UCC Selective
- Human Cultures - Behavioral/Social Science - ECON 21000 or AGECEC 21700
- Information Literacy - TECH 12000
- Science #1 - PHYS 21800
- Science #2 - See BCM's list
- Science, Technology & Society - BCM 10001 or TECH 12000
- Written Communication - See BCM's list
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15300 or MA 15800 or MA 16010

Program Requirements

Accredited by the American Council for Construction Education (ACCE)

Fall 1st Year

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- English First Year Composition Selective - Credit Hours: 3.00 *

14 Credits

Spring 1st Year

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 11201 - Construction Surveying Fundamentals

Credit Hours: 2.00. Introduction to basic surveying measurement and computations. Development of the surveying skills necessary to measure distances, angles, and elevations to required construction accuracies by eliminating mistakes and reducing errors. Calculation of corrections, traverse closures, coordinates, areas and construction layout data. Emphasis is placed on proper instrument use and note-keeping techniques. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

16 Credits

Fall 2nd Year

BCM 21200 - Construction Layout

Credit Hours: 3.00. Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM. Typically offered Fall Spring Summer.

BCM 21500 - Mechanical Construction

Credit Hours: 3.00. Principles of code, design, methods, and materials are applied to plumbing, heating, ventilation, and air conditioning systems for buildings. The comprehension of mechanical construction plans and specifications is emphasized through exercises in mechanical estimating. Typically offered Fall Spring.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

- Human Relations Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 21601 - Electrical Construction

Credit Hours: 2.00. Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through lab experiences. Typically offered Fall Spring Summer.

BCM 28500 - Construction Mechanics

Credit Hours: 4.00. Principles of statics and strength of materials including properties of materials, forces, equilibrium, stresses, and strains are studied. Emphasis is placed on understanding the behavior of structural components associated with the construction process. Typically offered Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Lab Science Selective - Credit Hours: 4.00 *

15 Credits

Fall 3rd Year

BCM 34500 - Scheduling

Credit Hours: 3.00. A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on critical path method (CPM) scheduling. Typically offered Fall Spring.

BCM 37500 - Estimating

Credit Hours: 3.00. A study of the methods and procedures used to identify, measure, and value items of construction work. Application of computer software to estimating tasks is featured. Typically offered Fall Spring Summer.

BCM 36000 - Residential Construction

Credit Hours: 3.00. A study of the best building practices in residential construction, based upon green building standards, energy star, and other national programs. Course content includes partial fulfillment of the requirements for the certified green professional designation (CGP) from the National Association of Home Builders. Typically offered Fall Spring Summer.

BCM 38000 - Concrete Construction

Credit Hours: 3.00. An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement. Typically offered Fall Spring.

- Humanities Foundation Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

BCM 30101 - Introduction To Construction Company Financial Management

Credit Hours: 2.00. An introduction to methods for recognizing revenue for long-term construction contracts and each method's impact on financial statements. Includes introduction to analysis of financial statements and their use in developing company budgets, projecting cash needs, pricing construction projects, and forecasting the impact of business decisions on construction company profit. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 38501 - Soils In Construction

Credit Hours: 2.00. This course is a study of the properties of soils as related to construction. Students will be introduced to soil testing and classification, subsurface soil investigation, soil compaction and stabilization, stress distribution in soil, strength, strength of soil, soil consolidation and related structure settlement. Other topics include earth pressure on retaining structures, stability analysis of slopes, and productivity/cost of earthmoving equipment. Typically offered Fall Spring Summer.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

BCM 46200 - Residential Design Build

Credit Hours: 2.00. A study of the design/build project delivery system for residential construction, including home design fundamentals, construction methods, disability code requirements, building code requirements. Course content includes partial fulfillment of the requirements for the National Association of Home Builders, Certified Aging-In-Place (CAPS) designation. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

BCM 35501 - Construction Site Supervision

Credit Hours: 2.00. A study of the required skills, duties, responsibilities, and leadership of construction on-site supervisory personnel and how they related to managing people on a jobsite. Emphasis is placed on understanding the multiple stakeholders,

communication, collaboration, planning, and problem solving. This course will examine how the success of overall construction project is directly tied to the skills of key supervisors or superintendents. Typically offered fall Spring Summer.



BCM 47500 - Construction Costs

Credit Hours: 3.00. A study of construction costs, including analysis of field records, job cost accounting, job cost control, and determination of unit prices. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

- English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15 Credits

Spring 4th Year

BCM 48701 - Construction Capstone

Credit Hours: 3.00. This course provides a comprehensive summary of the construction industry. Emphasis is placed on the "big

picture" and how the stakeholders, processes, and tasks come together to complete a complex construction project. Skills attained in previous coursework and internships will be used in industry simulations and comprehensive projects. Industry participants will provide real world coursework challenges. Typically offered Fall Spring Summer.

- Global Selective - Credit Hours: 3.00
- Residential Selective - Credit Hours: 3.00 ** see list
- Business Selective - Credit Hours: 3.00
- Communication Elective - Credit Hours: 3.00

15 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all BCM courses and all prerequisites for BCM courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Any course taken at Purdue can be attempted no more than three times (inclusive of W, WF, WN, and IF)

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Building Construction Management Minor

Objective: The BCM minor will expose students in other disciplines to more in-depth construction management principles to better prepare individuals seeking employment in one of the many related professions in the built environment. This minor will help to create basic understanding of daily construction operations at the project and corporate levels.

Admissions Requirements: Students must be in good academic standing for consideration of being admitted into the BCM Minor. This is a limited-access program based on available seats for enrollment. The BCM Department will review the enrollment numbers each semester to determine the availability for further admissions into the minor. Any students admitted to the BCM minor are subject to all current CODO (Change of Curricula) requirements if they desire to obtain full admissions into the PIBCM-BS degree program.

Students are not allowed to take more than 21 credits of BCM coursework while enrolled in the BCM minor.

Requirements for the Minor

Foundational Topics

BCM 10001 - Introduction To Construction

Credit Hours: 3.00. Introduction to Construction is a survey of the construction industry. It includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and management systems used in construction, with an emphasis on vocabulary building. Typically offered Fall Spring Summer.

BCM 17500 - Construction Materials And Methods

Credit Hours: 4.00. Students acquire basic skills in construction methods, quantity estimating, plan reading, and project documentation through hands-on laboratory experience assembling construction materials. Computer utilization includes word processing, spreadsheets, and computer graphics. Typically offered Fall Spring Summer.

BCM 27500 - Construction Plans And Measurements

Credit Hours: 3.00. Principles of graphic communication are applied to drawing and reading construction plans with emphasis on the use of computer-aided design software. Techniques for measuring items of construction work from plans and specifications are also covered. Typically offered Fall Spring Summer.

10 Credits

Selective Topics (Minimum of 6 credit hours)

BCM 23000 - Mechanical And Electrical Systems

Credit Hours: 3.00. Not open to building construction management technology students. An introductory study of piping, HVAC,

and electrical systems, and related materials used in buildings. This course is a composite of BCM 23100, 23200, and 23300. Typically offered Fall Spring.

BCM 25001 - Construction Project And Administrative Management

Credit Hours: 2.00. The study of administrative functions and project delivery methods common in the construction industry. Documentation from project startup through closeout will be covered as well as ethics and professionalism and written and oral communications in construction. Typically offered Fall Spring Summer.

BCM 32000 - Introduction To Disaster Restoration And Reconstruction Management

Credit Hours: 3.00. Introductory topics in the DRR concentration are discussed; causes of disasters and dimensions of their effects, protocols, equipment, and techniques of restoration and reconstruction, including project and business management practices and imperatives of DRR contractors. Typically offered Fall Spring Summer.

BCM 33000 - Introduction To Demolition And Reconstruction Management

Credit Hours: 3.00. This course introduces the opportunities and challenges in demolition and reconstruction management. Topics include: introduction to industry regulation, project planning, labor and equipment utilization, techniques and technologies, hazardous materials, issues involving historic properties, material reuse and recycling, safety and risk management, estimating and cost control, project feasibility, issues of ethics, and company management. Typically offered Fall Spring Summer.

BCM 34000 - Introduction To Healthcare Construction Management

Credit Hours: 3.00. This course explores the allocation and distribution of construction resources in the healthcare construction sector and an overview of current theories and research. Topics include the demand for health care, health insurance, hospitals and the services of all the possible healthcare professional stakeholders. A thorough understanding of the environment of care and all codes and standards relative to the constructors approach to this complex environment. Typically offered Fall Spring Summer.

BCM 35000 - Construction Site Planning

Credit Hours: 3.00. A study of material handling principles and their application in preparing a site utilization plan. The selection and use of construction equipment are emphasized. Typically offered Fall Spring Summer.

BCM 36000 - Residential Construction

Credit Hours: 3.00. A study of the best building practices in residential construction, based upon green building standards, energy

star, and other national programs. Course content includes partial fulfillment of the requirements for the certified green professional designation (CGP) from the National Association of Home Builders. Typically offered Fall Spring Summer.

BCM 51000 - Topics In Environmentally Sustainable Construction, Design And Development

Credit Hours: 3.00. This course explores environmental sustainability in all its forms, starting with the historical and theoretical basis and continuing through an understanding of sustainable building construction, design, development, and renewable energy strategies/management tools and how these can be applied in practice. Typically offered Fall Spring Summer.

BCM 45500 - Construction Company Management

Credit Hours: 3.00. Business policy and management aspects of construction companies are studied. Included are ethics, public relations, business development, business plans, bonds, insurance, and human resource management considerations. Typically offered Fall Spring.

BCM 45701 - Construction Safety

Credit Hours: 3.00. This course will examine the impact of safety on the construction industry, including in-depth discussions on the application of the Occupational Safety & Health Administration (OSHA) Safety and Health Standards for the construction industry. The emphasis of this course is to provide training for job sited supervisory personnel. This course will also fulfill the requirements for the OSHA 30-Hour Card. Typically offered Fall Spring Summer.

- EPCS XXXX - EPICS - Construction Related - Credit Hours: 1.00 - 3.00
- Other

6 Credits

16 Total Credits

Note

REQUIREMENTS NOTE: Up to 3 credit hours can be used in equivalent courses, as determined by the BCM Department Head.

Disaster Restoration, Demolition, and Reconstruction Management Minor

Minor Code: DRDR

Effective Fall 2016

West Lafayette Only

Requirements for the Minor

Effective Fall 2016

Minimum grade of C- required in all courses to earn minor

BCM 32000 - Introduction To Disaster Restoration And Reconstruction Management

Credit Hours: 3.00. Introductory topics in the DRR concentration are discussed; causes of disasters and dimensions of their effects, protocols, equipment, and techniques of restoration and reconstruction, including project and business management practices and imperatives of DRR contractors. Typically offered Fall Spring Summer.

BCM 33000 - Introduction To Demolition And Reconstruction Management

Credit Hours: 3.00. This course introduces the opportunities and challenges in demolition and reconstruction management. Topics include: introduction to industry regulation, project planning, labor and equipment utilization, techniques and technologies, hazardous materials, issues involving historic properties, material reuse and recycling, safety and risk management, estimating and cost control, project feasibility, issues of ethics, and company management. Typically offered Fall Spring Summer.

BCM 33100 - Demolition And Restoration Project Management

Credit Hours: 3.00. Introductory course for managing projects in demolition and disaster restoration. Apply principles of sound project management for analysis and evaluation of common demolition and disaster restoration dilemmas. Integrate knowledge of typical subsector labor, materials, and equipment assets to plan viable solutions to common technical and management issues in demolition and disaster restoration projects. Typically offered Fall Spring Summer.

BCM 42100 - Disaster Restoration And Reconstruction Industry Problem Investigation

Credit Hours: 2.00. A course that develops a student's preparation for an industrial concentration through a faculty and practitioner-guided study and analysis of a current DRR problem. The course culminates in a formal oral presentation and paper whose position is justified on the basis of the study and application of earlier coursework. In addition to faculty oversight, each student is typically guided by a practicing manager of the DRR industry who serves as a mentor to further develop student management potential. Typically offered Fall Spring Summer.

11 credits required for minor

Department of Computer and Information Technology

Overview

The Department of Computer and Information Technology (CIT) at Purdue provides educational opportunities that apply information technology (IT) to solve societal problems. Degree programs in information systems, network engineering technology, systems analysis and design, and cyber security focus software development, systems integration, data management, and computer networks.

Faculty

<https://polytechnic.purdue.edu/departments/computer-and-information-technology/directory>

Contact Information

Computer Information Technology Department

Knob Hall
Room 255
401 N. Grant St.
West Lafayette, IN 47907
Phone: 765-494-2560
Email: cit@purdue.edu

Contact an advisor

Graduate Information

For Graduate Information please see Computer and Information Technology Graduate Program Information.

Computer and Information Technology (CIT), BS

About the Program

As computers find their way into every part of our lives, information technology professionals are needed to keep the systems functioning and the data safe. Your information technology courses and problem-solving skills will prepare you for careers in almost any industry. You'll learn how to increase efficiencies as you work with computer applications, management information systems, databases, and computer networks. Computer and information technology courses provide students with strong technical skills, a thorough understanding of business needs, and the ability to communicate effectively with customers, peers, and industry leaders.

[Computer and Information Technology Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer and Information Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICIT-BS CNIT

120 CREDITS FOR GRADUATION

"C-" or better required in all CNIT courses that are a prerequisite to CNIT course

Departmental/Program Major Courses (120 credits)

Computer and Information Technology Required Major Courses (51 credits)

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

CNIT 37200 - Database Programming

Credit Hours: 3.00. This course explores advanced database programming techniques for enterprise-wide databases and their implementation. It uses programmatic extensions to Structured Query Language (SQL) supported by today's enterprise-class Relational Database Management Systems (RDBMS). Topics include advanced data manipulation, storage considerations, data transformation techniques to enhance interoperability of data, stored procedure and trigger design and implementation; and query optimization. Typically offered Fall Spring.

CNIT 39200 - Enterprise Data Management

Credit Hours: 3.00. This course examines advanced design techniques and physical issues relating to enterprise-wide data management. Topics include advanced design concepts, enhanced modeling and constructs, objects and unstructured and semi-structured data in databases, data management in non-business contexts, implementation of an enterprise data architecture, and data quality and stewardship. . Typically offered Fall Spring.

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

Programming Selective (3 credits)

CNIT 31500 - Systems Programming

Credit Hours: 3.00. This course introduces concepts of lower level systems programming in C/C++ on a UNIX/Linux operation system platform. Command level development, algorithms, data structures, iteration and recursion, algorithms and analysis will be covered. Typically offered Fall Spring Summer.

CNIT 32500 - Object-Oriented Application Development

Credit Hours: 3.00. This course focuses on using object-oriented programming languages in the development of modern, business applications. Topics include object-oriented design, encapsulation, object interfaces, inheritance, aggregation, abstract classes, polymorphism, data structures, and exception handling. Typically offered Fall Spring Summer.

Information Technology Selectives (15 credits)

- any other CNIT or
- CGT 30000 level or higher courses, EPCS (3 credits) approved by CIT faculty

Other Departmental /Program Course Requirements (66 credits)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

- Science Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Lab Science Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Interdisciplinary Selective (see supplemental information) - Credit Hours: 15.00
- Humanities Selective (satisfies Human Cultures Humanities for core). See approved list at:<http://www.purdue.edu/provost/initiatives/curriculum/course.html> - Credit Hours: 3.00
- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core). See approved list at:<http://www.purdue.edu/provost/initiatives/curriculum/course.html> - Credit Hours: 3.00
- IT Professional Experience Requirement - Credit Hours: 0.00
- Globalization Requirement - Credit Hours: 0.00

Communications Selective (3 credits)

COM 21000 - Debating Public Issues

Credit Hours: 3.00. Study of argumentation as applied to public discourse. Lectures on logic and reasoning, library research methods and bibliography, identification and analysis of issues, construction and organization of cases, refutation and rebuttal, and the phrasing and delivery of the argumentative speech. Preparation of debate cases. Typically offered Fall Spring.

COM 21200 - Approaches To The Study Of Interpersonal Communication

Credit Hours: 3.00. A study of the basic characteristics of human communication and the theoretical and practical implications of these characteristics for various forms of oral communication. Typically offered Fall Spring Summer. CTL:ICM 1101
Interpersonal Communication

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches

including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 31800 - Principles Of Persuasion

Credit Hours: 3.00. Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classical and modern approaches. Both theoretical and pragmatic considerations are introduced. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32400 - Introduction To Organizational Communication

Credit Hours: 3.00. An introduction to fundamental concepts and basic research related to communication behavior in organizational settings. Units cover message processing, leadership communication, communication climates, communication training, and communication audits. Students participate in an organizational simulation in some sections. Typically offered Summer Fall Spring.

Economics Selective (3 credits)

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of

the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

Accounting Selective (3 credits)

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

Statistics Selective (3 credits)

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 50100 - Experimental Statistics I

Credit Hours: 3.00. Concepts and methods of applied statistics. Exploratory analysis of data. Sample design and experimental design. Normal distributions. Sampling distributions. Confidence intervals and tests of hypotheses for one and two samples. Inference for contingency tables, regression and correlation, and one-way analysis of variance. Use of the SAS statistical software. Intended primarily for students who have not had calculus. Not open to students in mathematical sciences or engineering. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: College Algebra. Typically offered Fall Spring Summer.

STAT 51100 - Statistical Methods

Credit Hours: 3.00. Descriptive statistics; elementary probability; sampling distributions; inference, testing hypotheses, and estimation; normal, binomial, Poisson, hypergeometric distributions; one-way analysis of variance; contingency tables; regression. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: Two semesters of college calculus. Typically offered Fall Spring.

Professional Speaking Selective (3 credits)

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32500 - Interviewing: Principles And Practice

Credit Hours: 3.00. Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. Typically offered Fall Spring Summer.

COM 41500 - Discussion Of Technical Problems

Credit Hours: 3.00. Principles of speech communication related to interpersonal and group discussions on technical topics and problems; practice in using these modes in situations typically encountered by technologists. Typically offered Fall Spring.

Professional Writing Selective (3 credits)

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

General Business Selective (3 credits)

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

Free Elective (3 credits)

(Any non-remedial course - Credit Hours: 3.00: see supplemental information.)

See <https://polytechnic.purdue.edu/sites/default/files/files/NoCreditCourses-2016.pdf>

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science #1 - UCC Selective
- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

Program Requirements

Fall 1st Year

First Semester

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

15 Credits

Spring 1st Year

Second Semester

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

- Business Selective¹ - Credit Hours: 3.00

15 Credits

Fall 2nd Year

Third Semester

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming

languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

- Economics Selective ³ - Credit Hours: 3.00
- Science Selective ⁴ - Credit Hours: 3.00 *

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

Fourth Semester

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

- Communications Selective ² - Credit Hours: 3.00
- Statistics Selective ⁶ - Credit Hours: 3.00

- Lab Science Selective ⁷ - Credit Hours: 3.00 *

15 Credits

Fall 3rd Year

Fifth Semester

CNIT 31500 - Systems Programming

Credit Hours: 3.00. This course introduces concepts of lower level systems programming in C/C++ on a UNIX/Linus operation system platform. Command level development, algorithms, data structures, iteration and recursion, algorithms and analysis will be covered. Typically offered Fall Spring Summer.

CNIT 32500 - Object-Oriented Application Development

Credit Hours: 3.00. This course focuses on using object-oriented programming languages in the development of modern, business applications. Topics include object-oriented design, encapsulation, object interfaces, inheritance, aggregation, abstract classes, polymorphism, data structures, and exception handling. Typically offered Fall Spring Summer.

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

- Accounting Selective⁵ - Credit Hours: 3.00
- Professional Speaking Selective ⁸ - Credit Hours: 3.00
- Interdisciplinary Selective ⁹ - Credit Hours: 3.00

15 Credits

Spring 3rd Year

Sixth Semester

- Information Technology Selective ¹⁰ - Credit Hours: 3.00

- Information Technology Selective ¹⁰ - Credit Hours: 3.00
- Professional Writing Selective ¹¹ - Credit Hours: 3.00
- Interdisciplinary Selective ⁹ - Credit Hours: 3.00

CNIT 37200 - Database Programming

Credit Hours: 3.00. This course explores advanced database programming techniques for enterprise-wide databases and their implementation. It uses programmatic extensions to Structured Query Language (SQL) supported by today's enterprise-class Relational Database Management Systems (RDBMS). Topics include advanced data manipulation, storage considerations, data transformation techniques to enhance interoperability of data, stored procedure and trigger design and implementation; and query optimization. Typically offered Fall Spring.

15 Credits

Fall 4th Year

Seventh Semester

- Free Elective ¹² - Credit Hours: 2.00
- Interdisciplinary Selective ⁹ - Credit Hours: 3.00
- Information Technology Selective ¹⁰ - Credit Hours: 3.00
- Information Technology Selective ¹⁰ - Credit Hours: 3.00
- Humanities Foundational Selective ¹³ - Credit Hours: 3.00 *

15 Credits

Spring 4th Year

Eighth Semester

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

- Information Systems Selective ¹⁰ - Credit Hours: 3.00
- Interdisciplinary Selective ⁹ - Credit Hours: 3.00
- Interdisciplinary Selective ⁹ - Credit Hours: 3.00
- Behavioral/Social Sciences Foundational Selective ¹⁴ - Credit Hours: 3.00 *

15 Credits

Note

*Fulfills University Core

1. Students must earn a C- or better in all CNIT courses that are a prerequisite to CNIT courses.
2. 120 semester credits listed above are required for the CIT Bachelor of Science degree.
3. 2.0 Graduation GPA required for Bachelor of Science degree.
4. 2.0 Graduation GPA in all CNIT courses required for Bachelor of Science degree.
5. ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, WN, I and IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurduePlan is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Computer and Information Technology: Network Engineering Technology Concentration, BS

About the Program

The world operates on the back of computers - networks of computers. Whether it is wired or wireless, information must be able to travel the network securely, efficiently and accurately. The network engineering technology major provides the necessary background about hardware and software needs to solve networking problems.

Network Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Network Engineering include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICIT-BS NENT

120 CREDITS FOR GRADUATION

"C-" or better required in all CNIT courses that are a prerequisite to CNIT course

Departmental/Program Major Courses (120 credits)

Computer and Information Technology Major Courses (60 credits)

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

CNIT 24000 - Data Communications And Networking

Credit Hours: 3.00. This course provides a comprehensive introduction to data communications and networks. Topics include communication standards and concepts, protocols, the Open Systems Interconnect (OSI) model, point-to-point communication,

and local area networks. Business issues from both provider and user perspectives are discussed. Current technology and trends in each architectural element are reviewed. Typically offered Summer Fall Spring.

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

CNIT 31500 - Systems Programming

Credit Hours: 3.00. This course introduces concepts of lower level systems programming in C/C++ on a UNIX/Linux operation system platform. Command level development, algorithms, data structures, iteration and recursion, algorithms and analysis will be covered. Typically offered Fall Spring Summer.

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

CNIT 34000 - UNIX Administration

Credit Hours: 3.00. This course focuses on the tasks and issues involved in the administration of UNIX systems. Topics include installation, networking, software management, scripting, and user management. In the laboratory portion of the course, students implement and maintain UNIX systems. Typically offered Summer Fall Spring.

CNIT 34210 - Storage Area Networking

Credit hours: 2.00. This course introduces storage area network (SAN) technologies. Storage area networking concepts, architectures, protocols, and best practice implementation techniques are examined. Techniques for remotely booting systems over a SAN are covered. Students implement and maintain an industry standard SAN and network booting solutions. Typically offered Fall Spring Summer.

CNIT 34220 - Network Administration

Credit Hours: 2.00. This course focuses on the tasks and issues involved in the installation and administration of distributed computing systems. Topics include the administration of network operating systems and network system interoperability. Students will implement and maintain a comprehensive network service infrastructure. Typically offered Fall Spring Summer.

CNIT 34500 - Internetwork Design And Implementation

Credit Hours: 4.00. This is an advanced course in network architecture. Students learn to design and implement local and wide area networks capable of simultaneous transport of real-time traffic and multiprotocol data over packet-switched and circuit-switched networks. An emphasis is placed on the integration of diverse communications technologies, while considering the effects of engineering decisions on overall performance, from both business and technology perspectives. Typically offered Summer Fall Spring.

CNIT 34600 - Wireless Networks

Credit Hours: 4.00. This course introduces wireless networking. Topics include fundamental wireless communication concepts, wireless local area networks (LANs), and cellular systems. Wireless specific protocol elements are addressed in typical application environments. Data communications in multiple wireless environments are emphasized. In the laboratory section, students implement wireless solutions and integrate them into wired LAN environments. Typically offered Fall Spring.

CNIT 45500 - Network Security

Credit Hours: 3.00. This course explores business, conceptual, and technological aspects of network security for voice and data networks. The course deals with the analysis, design, implementation, and management issues surrounding effective network security. Key concepts and technology include virus protection, firewalls, authentication, encryption, wireless security, security protocols, physical security, and network security architecture and policy development. Typically offered Fall Spring Summer.

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

- Information Systems Selectives (any other CNIT or CGT 30000 level or higher courses, EPCS (3 credits) approved by CIT faculty) - Credit Hours: 6.00

Other Departmental /Program Course Requirements (60 credits)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

- Physics Selective (satisfies Science Selective for core) - Credit Hours: 4.00
- Physics Selective (satisfies Science Selective for core) - Credit Hours: 4.00
- Interdisciplinary Selective (see supplemental information) - Credit Hours: 7.00
- Humanities Foundational Selective (satisfies Human Cultures Humanities for core). See approved list attached - Credit Hours: 3.00

- Behavioral/Social Science Foundational Selective (satisfies Human Culture Behavioral/Social Science for core). See attached approved list - Credit Hours: 3.00
- IT Professional Experience Requirement - Credit Hours: 0.00
- Globalization Requirement - Credit Hours: 0.00

Communications Selective

COM 21000 - Debating Public Issues

Credit Hours: 3.00. Study of argumentation as applied to public discourse. Lectures on logic and reasoning, library research methods and bibliography, identification and analysis of issues, construction and organization of cases, refutation and rebuttal, and the phrasing and delivery of the argumentative speech. Preparation of debate cases. Typically offered Fall Spring.

COM 21200 - Approaches To The Study Of Interpersonal Communication

Credit Hours: 3.00. A study of the basic characteristics of human communication and the theoretical and practical implications of these characteristics for various forms of oral communication. Typically offered Fall Spring Summer. CTL:ICM 1101
Interpersonal Communication

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 31800 - Principles Of Persuasion

Credit Hours: 3.00. Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classical and modern approaches. Both theoretical and pragmatic considerations are introduced. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32400 - Introduction To Organizational Communication

Credit Hours: 3.00. An introduction to fundamental concepts and basic research related to communication behavior in organizational settings. Units cover message processing, leadership communication, communication climates, communication training, and communication audits. Students participate in an organizational simulation in some sections. Typically offered Summer Fall Spring.

Economics Selective

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

Accounting Selective

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

Statistics Selective

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 50100 - Experimental Statistics I

Credit Hours: 3.00. Concepts and methods of applied statistics. Exploratory analysis of data. Sample design and experimental

design. Normal distributions. Sampling distributions. Confidence intervals and tests of hypotheses for one and two samples. Inference for contingency tables, regression and correlation, and one-way analysis of variance. Use of the SAS statistical software. Intended primarily for students who have not had calculus. Not open to students in mathematical sciences or engineering. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: College Algebra. Typically offered Fall Spring Summer.

STAT 51100 - Statistical Methods

Credit Hours: 3.00. Descriptive statistics; elementary probability; sampling distributions; inference, testing hypotheses, and estimation; normal, binomial, Poisson, hypergeometric distributions; one-way analysis of variance; contingency tables; regression. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: Two semesters of college calculus. Typically offered Fall Spring.

Professional Speaking Selective

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32500 - Interviewing: Principles And Practice

Credit Hours: 3.00. Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. Typically offered Fall Spring Summer.

COM 41500 - Discussion Of Technical Problems

Credit Hours: 3.00. Principles of speech communication related to interpersonal and group discussions on technical topics and problems; practice in using these modes in situations typically encountered by technologists. Typically offered Fall Spring.

Professional Writing Selective

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

General Business Selective

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate

the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science Selective - PHYS Selective
- Science Selective - PHYS Selective

- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

Program Requirements

Fall 1st Year

First Semester

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

15 Credits

Spring 1st Year

Second Semester

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

- Business Selective¹ - Credit Hours: 3.00

15 Credits

Fall 2nd Year

Third Semester

CNIT 24000 - Data Communications And Networking

Credit Hours: 3.00. This course provides a comprehensive introduction to data communications and networks. Topics include communication standards and concepts, protocols, the Open Systems Interconnect (OSI) model, point-to-point communication, and local area networks. Business issues from both provider and user perspectives are discussed. Current technology and trends in each architectural element are reviewed. Typically offered Summer Fall Spring.

- Physics Selective (PHYS 21800 or 22000) - Credits Hours: 4.00 *

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

- Accounting Selective⁴ - Credit Hours: 3.00

16 Credits

Spring 2nd Year

Fourth Semester

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

- Statistics Selective ⁵ - Credit Hours: 3.00
- Physics Selective (PHYS 21900 or 22100) - Credit Hours: 4.00 *

16 Credits

Fall 3rd Year

Fifth Semester

CNIT 34000 - UNIX Administration

Credit Hours: 3.00. This course focuses on the tasks and issues involved in the administration of UNIX systems. Topics include

installation, networking, software management, scripting, and user management. In the laboratory portion of the course, students implement and maintain UNIX systems. Typically offered Summer Fall Spring.

CNIT 34500 - Internetwork Design And Implementation

Credit Hours: 4.00. This is an advanced course in network architecture. Students learn to design and implement local and wide area networks capable of simultaneous transport of real-time traffic and multiprotocol data over packet-switched and circuit-switched networks. An emphasis is placed on the integration of diverse communications technologies, while considering the effects of engineering decisions on overall performance, from both business and technology perspectives. Typically offered Summer Fall Spring.

- Interdisciplinary Selective⁷ - Credit Hours: 3.00
- Professional Speaking Selective⁶ - Credit Hours: 3.00
- Economics Selective³ - Credit Hours: 3.00

16 Credits

Spring 3rd Year

Sixth Semester

CNIT 34600 - Wireless Networks

Credit Hours: 4.00. This course introduces wireless networking. Topics include fundamental wireless communication concepts, wireless local area networks (LANs), and cellular systems. Wireless specific protocol elements are addressed in typical application environments. Data communications in multiple wireless environments are emphasized. In the laboratory section, students implement wireless solutions and integrate them into wired LAN environments. Typically offered Fall Spring.

- Professional Writing Selective⁹ - Credit Hours: 3.00

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

CNIT 34210 - Storage Area Networking

Credit hours: 2.00. This course introduces storage area network (SAN) technologies. Storage area networking concepts,

architectures, protocols, and best practice implementation techniques are examined. Techniques for remotely booting systems over a SAN are covered. Students implement and maintain an industry standard SAN and network booting solutions. Typically offered Fall Spring Summer.

CNIT 34220 - Network Administration

Credit Hours: 2.00. This course focuses on the tasks and issues involved in the installation and administration of distributed computing systems. Topics include the administration of network operating systems and network system interoperability. Students will implement and maintain a comprehensive network service infrastructure. Typically offered Fall Spring Summer.

14 Credits

Fall 4th Year

Seventh Semester

CNIT 45500 - Network Security

Credit Hours: 3.00. This course explores business, conceptual, and technological aspects of network security for voice and data networks. The course deals with the analysis, design, implementation, and management issues surrounding effective network security. Key concepts and technology include virus protection, firewalls, authentication, encryption, wireless security, security protocols, physical security, and network security architecture and policy development. Typically offered Fall Spring Summer.

- Communications Selective ² - Credit Hours: 3.00
- Information Technology Selective ⁸ - Credit Hours: 3.00
- Interdisciplinary Selective⁷ - Credit Hours: 2.00
- Humanities Foundational Selective ¹⁰ - Credit Hours: 3.00 *

14 Credits

Spring 4th Year

Eighth Semester

CNIT 31500 - Systems Programming

Credit Hours: 3.00. This course introduces concepts of lower level systems programming in C/C++ on a UNIX/Linux operation system platform. Command level development, algorithms, data structures, iteration and recursion, algorithms and analysis will be covered. Typically offered Fall Spring Summer.

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

- Information Technology Selective ⁸ - Credit Hours: 3.00
- Interdisciplinary Selective ⁷ - Credit Hours: 2.00
- Behavioral/Social Sciences Foundational Selective ¹¹ - Credit Hours: 3.00 *

14 Credits

Total Credits 120

Note

*Fulfills University Core

1. Students must earn a C- or better in all CNIT courses that are a prerequisite to another CNIT course.
2. 120 semester credits listed above are required for the CIT Bachelor of Science degree
3. 2.0 Graduation GPA required for Bachelor of Science degree.
4. 2.0 Graduation GPA in all CNIT courses required for Bachelor of Science degree.
5. ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, WN, I and IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurduePlan is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Computer and Information Technology: Systems Analysis and Design Concentration, BS

About the Program

Study how organizations use computer systems and procedures and then design information systems solutions to help them operate more efficiently and effectively. You will combine business practices with programming, applications and databases. In the workforce, systems professionals work in a variety of industries and with people from a variety of professions. You will be encouraged to further specialize with a minor in a specific field, such as healthcare, finance, agriculture or manufacturing.

Systems Analysis and Design Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Information and Technology Systems Analysis and Design include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICNIT-BS SAAD

120 CREDITS FOR GRADUATION

"C-" or better in all CNIT courses that are a prerequisite to CNIT course

Departmental/Program Major Courses (120 credits)

Computer and Information Technology Required Major Courses (52 credits)

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

CNIT 38000 - Advanced Analysis and Design

Credit Hours: 4.00. This course is an advanced study of system analysis and design methods and techniques used by systems analysts to develop information systems. Object-oriented tools and the Unified Modeling Language (UML) will be used for describing object structure and behavior, and use cases will be used for modeling functional processes. Topics include rapid development concepts, application architecture and system design, transition from object-oriented analysis and models to components and services, graphical user interface design, web interface design, prototyping, and commercial software package integration. Emphasis is also placed on the use of an object-oriented CASE tool. This course surveys other important skills for the systems analyst, such as fact-finding (requirements discovery), communications, project management, and cost-benefit analysis. . Typically offered Spring Summer Fall.

CNIT 39200 - Enterprise Data Management

Credit Hours: 3.00. This course examines advanced design techniques and physical issues relating to enterprise-wide data management. Topics include advanced design concepts, enhanced modeling and constructs, objects and unstructured and semi-structured data in databases, data management in non-business contexts, implementation of an enterprise data architecture, and data quality and stewardship. . Typically offered Fall Spring.

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture,

navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

Programming Selective

CNIT 31500 - Systems Programming

Credit Hours: 3.00. This course introduces concepts of lower level systems programming in C/C++ on a UNIX/Linux operation system platform. Command level development, algorithms, data structures, iteration and recursion, algorithms and analysis will be covered. Typically offered Fall Spring Summer.

CNIT 32500 - Object-Oriented Application Development

Credit Hours: 3.00. This course focuses on using object-oriented programming languages in the development of modern, business applications. Topics include object-oriented design, encapsulation, object interfaces, inheritance, aggregation, abstract classes, polymorphism, data structures, and exception handling. Typically offered Fall Spring Summer.

(6 credits from the following selectives options)

CNIT 38301 - Packaged Application Software Solutions

Credit Hours: 3.00. This course introduces knowledge, skills, tools, and techniques used to select and implement packaged application software solutions, both small and large (including ERP). Topics will include the make-verses-buy decision, critical success factors for packages, economic analysis, requirements analysis, identifying vendors and products, request for proposals, analysis of vendor proposals, decision analysis, implementation service providers, contracting for software and service, implementation project planning, life-cycle architecture, software installation and configuration, business process redesign organizational change management, integration with legacy system, customization verses adaptation, data conversion, system and application testing, training and support, system cutover and post go-live considerations. The course will focus on best practices, and consequences of less than best practices. This course will benefit students with career aspirations as systems analysts, business analysts, consultants, data and database administrators, and IT managers. Typically offered Fall Spring Summer.

CNIT 40500 - Software Development Methodologies

Credit Hours: 3.00. This course explores methodologies and practices commonly used in contemporary software development projects. Topics include programming standards, code ownership and accountability, source code management and version control, productivity and quality metrics, software testing, and software process maturity models. Typically offered Fall Spring.

CNIT 38501 - Advanced Systems Design And Integration

Credit Hours: 3.00. A continuation of CNIT 38000 with an emphasis on knowledge, skills, tools, and techniques that systems analysts and architects use to translate functional systems requirements into design specifications that can be subsequently implemented. Students will learn methods for developing specifications that fulfill desired quality properties such as performance, scalability, maintainability, security, privacy, and protection of corporate property, interoperability, and usability, to name a few. Special emphasis is placed on integrating new systems with older systems, as well as with business processes. This course takes a holistic view of design and integration that specifies a complete information technology or information systems solution from the perspectives of different stakeholders, and from different systemic viewpoints and perspectives. Increasingly, the result of design and integration is referred to as a solution's architecture. Typically offered Fall Spring Summer.

Information Technology Selective

Any CNIT or CGT 30000 level or higher courses, EPCS (3 credits) approved by CIT faculty

Other Departmental /Program Course Requirements (68 credits)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHIL 15000 - Principles Of Logic

Credit Hours: 3.00. A first course in formal deductive logic; mechanical and other procedures for distinguishing good arguments from bad. Truth-tables and proofs for sentential (Boolean) connectives, followed by quantificational logic with relations. Although metatheoretic topics are treated, the emphasis is on methods. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

- Science Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Lab Science Selective (satisfies Science Selective for core) - Credit Hours: 3.00
- Interdisciplinary Selective (see supplemental information) - Credit Hours: 14.00
- IT Professional Experience Requirement - Credit Hours: 0.00
- Globalization - Credit Hours: 0.00

Communications Selective (3 credits)

COM 21000 - Debating Public Issues

Credit Hours: 3.00. Study of argumentation as applied to public discourse. Lectures on logic and reasoning, library research methods and bibliography, identification and analysis of issues, construction and organization of cases, refutation and rebuttal, and the phrasing and delivery of the argumentative speech. Preparation of debate cases. Typically offered Fall Spring.

COM 21200 - Approaches To The Study Of Interpersonal Communication

Credit Hours: 3.00. A study of the basic characteristics of human communication and the theoretical and practical implications of these characteristics for various forms of oral communication. Typically offered Fall Spring Summer. CTL:ICM 1101
Interpersonal Communication

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 31800 - Principles Of Persuasion

Credit Hours: 3.00. Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classical and modern approaches. Both theoretical and pragmatic considerations are introduced. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32400 - Introduction To Organizational Communication

Credit Hours: 3.00. An introduction to fundamental concepts and basic research related to communication behavior in organizational settings. Units cover message processing, leadership communication, communication climates, communication training, and communication audits. Students participate in an organizational simulation in some sections. Typically offered Summer Fall Spring.

Economics Selective (3 credits)

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

Accounting Selective (3 credits)

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

Statistics Selective (3 credits)

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 50100 - Experimental Statistics I

Credit Hours: 3.00. Concepts and methods of applied statistics. Exploratory analysis of data. Sample design and experimental design. Normal distributions. Sampling distributions. Confidence intervals and tests of hypotheses for one and two samples. Inference for contingency tables, regression and correlation, and one-way analysis of variance. Use of the SAS statistical software. Intended primarily for students who have not had calculus. Not open to students in mathematical sciences or engineering. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: College Algebra. Typically offered Fall Spring Summer.

STAT 51100 - Statistical Methods

Credit Hours: 3.00. Descriptive statistics; elementary probability; sampling distributions; inference, testing hypotheses, and estimation; normal, binomial, Poisson, hypergeometric distributions; one-way analysis of variance; contingency tables;

regression. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, STAT 35000, STAT 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: Two semesters of college calculus. Typically offered Fall Spring.

Professional Speaking Selective (3 credits)

COM 31500 - Speech Communication Of Technical Information

Credit Hours: 3.00. The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audiovisual materials in such presentations. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

COM 32500 - Interviewing: Principles And Practice

Credit Hours: 3.00. Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. Typically offered Fall Spring Summer.

COM 41500 - Discussion Of Technical Problems

Credit Hours: 3.00. Principles of speech communication related to interpersonal and group discussions on technical topics and problems; practice in using these modes in situations typically encountered by technologists. Typically offered Fall Spring.

Professional Writing Selective (3 credits)

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

General Business Selective (3 credits)

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

Humanities Selective (3 credits)

(satisfies Human Cultures Humanities for core). See approved list at:
<http://www.purdue.edu/provost/initiatives/curriculum/course.html>

Behavioral/Social Science Foundational Selective

(satisfies Human Culture Behavioral/Social Science for core). See approval list at:
<http://www.purdue.edu/provost/initiatives/curriculum/course.html>

University Core Requirements

- Human Cultures Humanities - UCC Selective
- Human Cultures Behavioral/Social Science - UCC Selective

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science #1 - UCC Selective

- Science #2 - UCC Selective
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology
- Written Communication - ENGL 10600 - First-Year Composition or
- Written Communication - ENGL 10800 - Accelerated First-Year Composition or
- Written Communication - ENGL 10100 - English Composition I

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

Program Requirements

Fall 1st Year

First Semester

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 10100 - English Composition I

Credit Hours: 3.00. The first half of the basic composition sequence. Extensive practice in writing clear and effective prose. Instruction in logic, structure, and style. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

15 Credits

Spring 1st Year

Second Semester

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17600 - Information Technology Architectures

Credit Hours: 3.00. A conceptual and technological survey of information technology architectures inclusive of operating systems, network operating systems, distributed systems architectures, and distributed application architectures. Interoperability between these architectural components is explored. Current technology and trends in each architectural element are reviewed. PC literacy required. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

Business Selective ¹ - Credit Hours: 3.00

15 Credits

Fall 2nd Year

Third Semester

CNIT 25501 - Object-Oriented Programming Introduction

Credit Hours: 3.00. This course introduces software development concepts common to modern object-oriented programming languages. Topics include: intermediate data types, decisions, repetitive structures; methods; arrays and collections; encapsulation, inheritance, and polymorphism; exception handling; data persistence; Database Management System (DBMS) connectivity; user interface construction; software testing and debugging; and working in teams. Typically offered Fall Spring Summer.

CNIT 27000 - Cybersecurity Fundamentals

Credit Hours: 3.00. This course introduces cybersecurity fundamentals and concepts. Security models that provide a basis for overarching security solutions are introduced to provide a basis for discussion. Risks and vulnerabilities are examined along with technical controls that can be used to mitigate them. The role of security policy and the incident management framework are examined. Emphasis is placed on building a strong foundation for further study in the field. Typically offered Fall Spring Summer.

- Statistics Selective ⁶ - Credit Hours: 3.00

PHIL 15000 - Principles Of Logic

Credit Hours: 3.00. A first course in formal deductive logic; mechanical and other procedures for distinguishing good arguments from bad. Truth-tables and proofs for sentential (Boolean) connectives, followed by quantificational logic with relations. Although metatheoretic topics are treated, the emphasis is on methods. Typically offered Summer Fall Spring.

- Science Selective ⁴ - Credit Hours: 3.00 *

15 Credits

Spring 2nd Year

Fourth Semester

CNIT 24200 - System Administration

Credit Hours: 3.00. This course provides a comprehensive introduction to system administration. Topics include authentication and authorization, directory services, system management and system security. Emphasis is placed on enterprise level systems. Typically offered Summer Fall Spring.

CNIT 27200 - Database Fundamentals

Credit Hours: 3.00. A study of relational database concepts. These concepts include data design, modeling, and normalization; the use of Structured Query Language (SQL) to define, manipulate, and test the database; programmatic access to a database and practical issues that database developers must handle. Typically offered Fall Spring Summer.

CNIT 28000 - Systems Analysis And Design Methods

Credit Hours: 3.00. Comprehensive introduction to information systems development. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Introduction to tools and techniques for systems development. Typically offered Fall Spring Summer.

- Communications Selective ² - Credit Hours: 3.00
- Lab Science Selective ⁷ - Credit Hours: 3.00 *

15 Credits

Fall 3rd Year

Fifth Semester

CNIT 32000 - Policy, Regulation, And Globalization In Information Technology

Credit Hours: 3.00. This course provides students with opportunities to study how technology is intertwined with larger economic, social, cultural, and ethical dynamics in an era of intensified globalization. The course examines technology in a global environment. Students will explore concepts and issues related to law, policy, regulation, outsourcing, offshoring, globalization, global competitiveness, global communications, cultural differences and quality of life issues. Students will examine ethical situations that arise as a result of the impact of technology. In summary, the course is designed to help students understand what it means to identify as, and/or work with, technology in a global environment. Typically offered Fall Spring Summer.

CNIT 38000 - Advanced Analysis and Design

Credit Hours: 4.00. This course is an advanced study of system analysis and design methods and techniques used by systems analysts to develop information systems. Object-oriented tools and the Unified Modeling Language (UML) will be used for describing object structure and behavior, and use cases will be used for modeling functional processes. Topics include rapid development concepts, application architecture and system design, transition from object-oriented analysis and models to components and services, graphical user interface design, web interface design, prototyping, and commercial software package integration. Emphasis is also placed on the use of an object-oriented CASE tool. This course surveys other important skills for the systems analyst, such as fact-finding (requirements discovery), communications, project management, and cost-benefit analysis. . Typically offered Spring Summer Fall.

- Programming Selective (CNIT 31500 or CNIT 32500) - Credit Hours: 3.00
- Professional Speaking Selective ⁹ - Credit Hours: 3.00
- Accounting Selective ⁵ - Credit Hours: 3.00

16 Credits

Spring 3rd Year

Sixth Semester

- SAAD Selective ⁸ - Credit Hours: 3.00

CNIT 39200 - Enterprise Data Management

Credit Hours: 3.00. This course examines advanced design techniques and physical issues relating to enterprise-wide data management. Topics include advanced design concepts, enhanced modeling and constructs, objects and unstructured and semi-structured data in databases, data management in non-business contexts, implementation of an enterprise data architecture, and data quality and stewardship. . Typically offered Fall Spring.

- Professional Writing Selective ¹² - Credit Hours: 3.00
- Interdisciplinary Selective ¹⁰ - Credit Hours: 3.00

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

Seventh Semester

- Interdisciplinary Selective ¹⁰ - Credit Hours: 3.00
- Interdisciplinary Selective ¹⁰ - Credit Hours: 3.00
- SAAD Selective ⁸ - Credit Hours: 3.00
- Economics Selective ³ - Credit Hours: 3.00
- Humanities Foundational Selective ¹³ - Credit Hours: 3.00 *

15 Credits

Spring 4th Year

Eighth Semester

CNIT 48000 - Managing Information Technology Projects

Credit Hours: 3.00. This course introduces the application of knowledge, skills, tools, and techniques that project managers use to plan, staff, estimate, and manage information technology projects. Special emphasis is placed on learning and applying the concepts of managing scope, risk, budget, time, expectations, quality, people, communications, procurement, and externally provided services. Students will apply project management technology and techniques to business problems. Typically offered Fall Spring.

- Information Technology Selective ¹¹ - Credit Hours: 3.00
- Interdisciplinary Selective ¹⁰ - Credit Hours: 3.00
- Interdisciplinary Selective ¹⁰ - Credit Hours: 2.00
- Behavioral/Social Sciences Foundational Selective ¹⁴ - Credit Hours: 3.00 *

14 Credits

Co-Curricular Requirements

- Professional IT Experience Requirement¹⁵ - Credit Hours: 0.00
- Globalization Requirement¹⁶ - Credit Hours: 0.00

120 Total Credits

Note

*Fulfills University core

1. Students must earn a C- or better in all CNIT courses that are a prerequisite to CNIT courses.
2. 120 semester credits listed above are required for the CIT Bachelor of Science degree.
3. 2.0 Graduation GPA required for Bachelor of Science degree.
4. 2.0 Graduation GPA in all CNIT courses required for Bachelor of Science degree.
5. ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, WN, I, AND IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurduePlan is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Computer and Information Technology Minor

FOR STUDENTS EARNING DEGREES OUTSIDE COMPUTER & INFORMATION TECHNOLOGY

Effective Fall 2016

Minor Code: CNIT

15 Credit Hours Required

CNIT 18000 (3 credits) required + 12 credits CNIT credits that fulfill CIT Major Requirements

Major Requirements:

Computer and Information Technology (CIT), BS

Computer and Information Technology: Network Engineering Technology Concentration, BS

Computer and Information Technology: Systems Analysis and Design Concentration, BS

Requirements for the Minor

CNIT 18000 - Introduction To Systems Development

Credit Hours: 3.00. This course introduces information systems development. Topics include types of information systems, system development, database management systems, and problem solving. Students will read/create UML, ERD, and data flow diagrams to model information system objects, data, processes, and logic. Labs emphasize modeling and SQL/QBE querying to prepare students for later systems, programming, and database classes. Given user requirements students will design, construct, and test a personal computer information system. PC literacy required. Typically offered Summer Fall Spring.

- CNIT Selective - Credit Hours: 3.00
- CNIT Selective - Credit Hours: 3.00
- CNIT Selective - Credit Hours: 3.00
- CNIT Selective - Credit Hours: 3.00

15 Credits

Minor Requirements

1. A 2.0 GPA in all minor courses
2. No course may be taken pass/fail
3. Transfer credit, course substitutions, and credit by exam limited to three (3) credit hours
4. Only one (1) of CNIT 10500, CNIT 15501, or CNIT 17500 may be used to fulfill the minor requirements

1. CS 17700, CS 18000, CGT 21500 or any 3 credit programming course at Purdue may fulfill the CNIT 15501 requirement. This will count as a substitute.
 5. CNIT 13600 cannot be used to fulfill the minor requirements
 6. Course requisites (pre-requisites, concurrent pre-requisites, and restrictions) must be met
 7. 30000 level courses require permission from CIT Advisor
- The CIT minor can be attached to any Purdue University major that will accommodate or allow it.

Department of Computer Graphics Technology

The Department of Computer Graphics Technology touches all aspects of computer graphics, from animation to scientific visualization, and from user experience to game studies. Research projects on these topics push the boundaries of how the medium can be used, while the variety of degree options prepare students to be practitioners and managers in an array of computer graphics-related careers. With eight areas of specialization to choose from, undergraduate computer graphics students can align their plan of study with their talents. Real-world projects and research opportunities help students put theories into practice.

The five-year combined BS/MS Degree Program in Computer Graphics Technology enables outstanding students to complete the Bachelor of Science in a Computer Graphics Technology major and the Master of Science in Computer Graphics Technology in a total of five years, rather than six years or more (if pursued separately). Visit the Computer Graphics Technology website for additional information about this option.

Faculty

<https://polytechnic.purdue.edu/departments/computer-graphics-technology/directory>

Contact Information

Computer Graphics Technology Department

Knoy Hall, Room 363
401 N. Grant St.
West Lafayette, IN 47907
Phone: 765-494-7505
Email: cgtinfo@purdue.edu

Graduate Information

For Graduate Information please see [Computer Graphics Technology Graduate Program Information](#).

Animation, BS

About the Program

Computer animation is everywhere, not only in entertainment but also in education, product and packaging, construction, healthcare and courtrooms as well as new applications yet to be discovered. When you major in animation at Purdue University,

you will focus on six areas of animation: 3-D modeling, texturing, lighting, rendering and character rigging (creating a digital skeleton) and motion. Your primary tool will be the powerful animation software, Maya, and you will experiment with other options.

Animation Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Animation include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

ANIM

PICGT-BS

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

Required Major Courses (29 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34100 - Motion for Computer Animation

Credit Hours: 3.00. An applied course covering three-dimensional computer graphic animation for graphics specialists and

professionals involved in the use of technical design, time and motion study, surface texture mapping, digital lighting, color, and the technology required to produce computer animations for commercial applications in manufacturing design, marketing, and training. Typically offered Fall Spring Summer.

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

Major Selectives* - Select 4 of the following courses (12 credits)

<http://www.tech.purdue.edu/CGT/academics/coursepages.cfm>

- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00
- CGT Selective - 30000 Level or higher - Credit Hours: 3.00
- CGT Selective - 40000 Level Selective (CGT 44200 or CGT 44600) Credit Hours: 3.00

Other Departmental/Program Course Requirements (64 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for Core)- Credit Hours: 3.00
- Humanities Elective - Credit Hours: 6.00
- Science Selective (satisfies Science Selective for Core) - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00
- CGT Global Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

Electives (15 credits)

- Free Electives - Credit Hours: 15.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1

- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or click here.

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- English Selective* - Credit Hours: 3.00

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

14 Credits

Spring 1st Year

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

- Human Cultures: Humanities Core* - Credit Hours: 3.00

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Science Foundational Selective Core* - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

- Free Elective - Credit Hours: 3.00

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

16 Credits

Fall 3rd Year

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- CGT Selective - Credit Hours: 3.00

CGT 34100 - Motion for Computer Animation

Credit Hours: 3.00. An applied course covering three-dimensional computer graphic animation for graphics specialists and professionals involved in the use of technical design, time and motion study, surface texture mapping, digital lighting, color, and the technology required to produce computer animations for commercial applications in manufacturing design, marketing, and training. Typically offered Fall Spring Summer.

- CGT Globalization Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00

- Management Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CGT Selective (40000 Level) - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- Technical Elective - Credit Hours: 3.00

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

17 Credits

Spring 4th Year

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Building Information Modeling, BS

About the Program

Combining graphics expertise with broad construction knowledge, building information modeling (BIM) is helping to revolutionize the architecture, engineering and construction (AEC) industry through its transformative and collaborative approach. When you major in building information modeling at Purdue University, you'll gain skills that will help a construction team create detailed designs and documentation. The 3D computer model is at the heart of BIM. Once you have created a model, you can view the structure from inside specific rooms, from any angles, and even with different materials such as brick or siding. You will learn about a wide range of topics necessary in the field, such as carpentry, steel, and plumbing and electrical trades.

Building Information Modeling Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Building Information Modeling include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

BINM

PICGT-BS

Catalog Term: 201610

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

Required Major Courses (32 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

CGT 26200 - Introduction To Construction Graphics

Credit Hours: 3.00. Study of graphic solutions to problems conditioned by traditional and emerging construction document standards. Construction document creation is based on current architectural engineering and construction (AEC) standards with a focus on residential settings. Introductory 2D documentation will progress into 3D modeling techniques. Typically offered Fall Spring Summer.

CGT 36000 - Applications Of Construction Documentation I

Credit Hours: 3.00. Standards applied to the creation and distribution of documentation within the construction enterprise. Construction documents are created as products of a computer model. Residential modeling is followed by an introduction to light commercial documentation. Topics include a study of blueprint reading and 5D building information modeling (BIM) estimation of material extracted from a model. Typically offered Summer Fall Spring.

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

CGT 46000 - Building Information Modeling For Commercial Construction

Credit Hours: 3.00. The study of commercial jobsite planning and coordination. Trade coordination, visualization, and communication are emphasized. Activities include collision detection reports, construction animations, and professional presentations. Typically offered Summer Fall Spring.

CGT 46200 - Applications Of Construction Documentation II

Credit Hours: 3.00. Creating, archiving, integrating, qualifying and utilizing computer-generated, three-dimensional architectural models in a light commercial construction enterprise. Topics include components of MEP, fire protection, blueprint reading and 4D BIM scheduling. Credit cannot be obtained for both CGT 36200 and CGT 46200. Typically offered Fall Spring Summer.

Major Selectives* - Select 3 of the following courses (9 credits)

<http://www.tech.purdue.edu/CGT/academics/coursepages.cfm>

- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (64 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for Core)- Credit Hours: 3.00
- Humanities Elective - Credit Hours: 6.00
- Science Selective (satisfies Science Selective for Core) - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00
- CGT Global Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

Electives (15 credits)

- Free Electives - Credit Hours: 15.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered

design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Selective - Credit Hours: 3.00 *

14 Credits

Spring 1st Year

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 26200 - Introduction To Construction Graphics

Credit Hours: 3.00. Study of graphic solutions to problems conditioned by traditional and emerging construction document standards. Construction document creation is based on current architectural engineering and construction (AEC) standards with a focus on residential settings. Introductory 2D documentation will progress into 3D modeling techniques. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

CGT 36000 - Applications Of Construction Documentation I

Credit Hours: 3.00. Standards applied to the creation and distribution of documentation within the construction enterprise. Construction documents are created as products of a computer model. Residential modeling is followed by an introduction to light commercial documentation. Topics include a study of blueprint reading and 5D building information modeling (BIM) estimation of material extracted from a model. Typically offered Summer Fall Spring.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

- Human Cultures: Humanities Core - Credit Hours: 3.00 *
- Science Foundational Selective Core - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

15 Credits

Fall 3rd Year

CGT 46200 - Applications Of Construction Documentation II

Credit Hours: 3.00. Creating, archiving, integrating, qualifying and utilizing computer-generated, three-dimensional architectural models in a light commercial construction enterprise. Topics include components of MEP, fire protection, blueprint reading and 4D BIM scheduling. Credit cannot be obtained for both CGT 36200 and CGT 46200. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

CGT 46000 - Building Information Modeling For Commercial Construction

Credit Hours: 3.00. The study of commercial jobsite planning and coordination. Trade coordination, visualization, and communication are emphasized. Activities include collision detection reports, construction animations, and professional presentations. Typically offered Summer Fall Spring.

- CGT Selective - Credit Hours: 3.00
- CGT Globalization Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal

communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

17 Credits

Spring 4th Year

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Effects Technical Direction, BS

About the Program

In the animation and visual effects (VFX) industries, an effects technical director is responsible for creating simulations for a variety of natural phenomena. Whenever a movie needs digital simulations of large-scale destructions, fluids, dust, or even steam coming off of a cup of coffee, the effects technical director is responsible for making it happen.

An effects technical director is a combination of programmer and artist. You will take classes focused on fire, destruction, smoke, particles, and fluids, as well as the math and physics courses that provide the underlying fundamentals. You will work with industry-standard tools and techniques for creating a variety of effects.

Effects Technical Direction Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Effects Technical Direction include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

ETDR

PICGT-BS

Catalog Term: 201710

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (47 credits)

Required Major Courses (44 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career

opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14700 - Visual Effects Introduction

Credit Hours: 3.00. This course introduces students to the visual effects techniques using common methodologies and tools. Topics include procedural frameworks, 3D pipeline implementation, vector operations, and simulating physical phenomena for entertainment graphics. Special emphasis is placed on achieving aesthetically pleasing entertainment-grade graphics using visual effects techniques. Typically offered Fall Spring Summer.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

CGT 24600 - Compositing I

Credit Hours: 3.0. This course focuses on applying node-based video compositing techniques as applied to 3D visual effects and animation. Students explore the major areas of video compositing, including node-based workflows, integration with 3D animation and visual effects tools, image tracking, rotoscoping, and chroma keying. Special emphasis is placed on creating aesthetically pleasing video composites using production tools and techniques. Typically offered Fall Spring Summer.

CGT 24700 - Visual Effects - Particles And Procedural Effects

Credit Hours: 3.00. This course focuses on simulating and rendering particles. Special emphasis is placed on volumes, sparks, dust, and smoke effects. Techniques for minimizing render times and meeting production requirements are explored. Emphasis is placed on the use of production tools and techniques to create aesthetically pleasing graphics. Typically offered Fall Spring Summer.

CGT 24800 - Visual Effects - Pyrotechnics And Destruction Effects

Credit Hours: 3.00. This course focuses on the application of visual effects methodology to create effects based on destruction techniques and pyrotechnics. Students implement projects using methods for simulating destruction, fire, and smoke. Emphasis is placed on using production tools and techniques to produce realistic and aesthetically pleasing graphics. Typically offered Fall Spring Summer.

CGT 24900 - Visual Effects - Programming

Credit Hours: 3.00. This course focuses on the solving common visual effects problems using common techniques, tools, and languages. Students write programs to solve visual effects problems using computer languages prevalent in industry. Emphasis is placed on authentic production problems. Typically offered Fall Spring Summer.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34600 - Digital Video And Audio

Credit Hours: 3.00. Covers the use of digital technologies for video and audio in multimedia, hypermedia, and animation products. Students examine the methods for creating, sampling, and storing digital video and digital audio and the constraints placed on these media assets when used for media-based products. Emphasis is placed upon the technology of digital video and audio, including formats, data rates, compressors, and the advantages and disadvantages of the different technologies. Typically offered Fall Spring Summer.

CGT 34800 - Photorealistic Shaders

Credit Hours: 3.00. This course focuses on the creation and application of photorealistic custom shaders to visual effect problems. Students learn to render common material photorealistically using common industry tools and techniques. Emphasis is placed on meeting specified aesthetic and photorealistic requirements within computationally constrained environments. Typically offered Fall Spring Summer.

CGT 34900 - Visual Effects Technical Directing

Credit Hours: 3.00. This course focuses on solving visual effects problems in an open-ended scenario. The class works as a single team to solve a semester long visual effects problem. Students assume specialized roles centered around knowledge gained in previous courses to solve just-in-time problems. Typically offered Fall Spring Summer.

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

CGT 44800 - Visual Effects - Capstone I

Credit Hours: 3.00. Students work in a multi-disciplinary team of video composers and visual effects technical directors to propose and implement a project for a client. Students tackle all aspects associated with the project, including narrative, compositing, graphics, and simulation development. Problem identification and selection, team dynamics principles, project management, and preliminary research and scheduling are major components of this course. Teams are responsible for project selection, client relations, and foundational activities, related to problem solutions. The course culminates in a mid-project design review report and presentation. Typically offered Fall Spring Summer.

Major Selectives* - Select 1 of the following courses (3 credits)

- CGT VFX/Animation Selective - Credit Hours: 3.00

Other Departmental /Program Course Requirements (70 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis,

data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

ENTR 31000 - Marketing And Management For New Ventures

Credit Hours: 3.00. Second in a two course sequence designed to develop a foundation of basic skills in the areas of entrepreneurship and innovation. Students completing this course will gain greater depth in areas essential to the creation and management of new ventures, including marketing and selling, finance and accounting, project management leadership, team building and ethics. Typically offered Fall Spring.

ENTR 48000 - Entrepreneurship Capstone

Credit Hours: 3.00. The requested course will provide the opportunity to develop capstone courses for the Certificate in Entrepreneurship and Innovation Program. Capstone courses are designed to provide students with the opportunity to apply the knowledge acquired in Certificate Program "core" and "option" courses to hands-on, real world activities related to entrepreneurship and innovation. Typically Fall Spring.

MA 16100 - Plane Analytic Geometry And Calculus I

Credit Hours: 5.00. Introduction to differential and integral calculus of one variable, with applications. Some schools or departments may allow only 4 credit hours toward graduation for this course. Designed for students who have not had at least a one-semester calculus course in high school, with a grade of "A" or "B". Not open to students with credit in MA 16500. Demonstrated competence in college algebra and trigonometry. Typically offered Fall Spring Summer.

MA 16200 - Plane Analytic Geometry And Calculus II

Credit Hours: 5.00. Continuation of MA 16100. Vectors in two and three dimensions, techniques of integration, infinite series, conic sections, polar coordinates, surfaces in three dimensions. Some schools or departments may allow only 4 credit hours toward graduation for this course. Typically offered Fall Spring Summer.

MA 26100 - Multivariate Calculus

Credit Hours: 4.00. Planes, lines, and curves in three dimensions. Differential calculus of several variables; multiple integrals. Introduction to vector calculus. Not open to students with credit in MA 17400 or MA 27100 . Typically offered Fall Spring Summer.

MA 26500 - Linear Algebra

Credit Hours: 3.00. Introduction to linear algebra. Systems of linear equations, matrix algebra, vector spaces, determinants, eigenvalues and eigenvectors, diagonalization of matrices, applications. Not open to students with credit in MA 26200, 27200, 35000 or MA 35100. Typically offered Fall Spring Summer.

PHIL 11400 - Global Moral Issues

Credit Hours: 3.00. A systematic and representative examination of significant contemporary moral problems with a focus on global issues such as international justice, poverty and foreign aid, nationalism and patriotism, just war, population and the environment, human rights, gender equality, and national self-determination. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Humanities Elective - Credit Hours: 3.00
- Computer Science Selective - Credit Hours: 4.00
- CGT Global Selective - Credit Hours: 3.00
- Psychology Selective - Credit Hours: 3.00
- Science Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

Electives (3 credits)

- Free Elective - Credit Hours: 3.00

University Core Requirements

- Human Cultures Humanities

- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

MA 16100 - Plane Analytic Geometry And Calculus I

Credit Hours: 5.00. Introduction to differential and integral calculus of one variable, with applications. Some schools or departments may allow only 4 credit hours toward graduation for this course. Designed for students who have not had at least a one-semester calculus course in high school, with a grade of "A" or "B". Not open to students with credit in MA 16500. Demonstrated competence in college algebra and trigonometry. Typically offered Fall Spring Summer.

- CS Selective - Credit Hours: 4.00
- English Selective - Credit Hours: 3.00 *

17 Credits

Spring 1st Year

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

CGT 14700 - Visual Effects Introduction

Credit Hours: 3.00. This course introduces students to the visual effects techniques using common methodologies and tools. Topics include procedural frameworks, 3D pipeline implementation, vector operations, and simulating physical phenomena for entertainment graphics. Special emphasis is placed on achieving aesthetically pleasing entertainment-grade graphics using visual effects techniques. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16200 - Plane Analytic Geometry And Calculus II

Credit Hours: 5.00. Continuation of MA 16100. Vectors in two and three dimensions, techniques of integration, infinite series, conic sections, polar coordinates, surfaces in three dimensions. Some schools or departments may allow only 4 credit hours toward graduation for this course. Typically offered Fall Spring Summer.

14 Credits

Fall 2nd Year

CGT 24700 - Visual Effects - Particles And Procedural Effects

Credit Hours: 3.00. This course focuses on simulating and rendering particles. Special emphasis is placed on volumes, sparks, dust, and smoke effects. Techniques for minimizing render times and meeting production requirements are explored. Emphasis is

placed on the use of production tools and techniques to create aesthetically pleasing graphics. Typically offered Fall Spring Summer.

CGT 24600 - Compositing I

Credit Hours: 3.0. This course focuses on applying node-based video compositing techniques as applied to 3D visual effects and animation. Students explore the major areas of video compositing, including node-based workflows, integration with 3D animation and visual effects tools, image tracking, rotoscoping, and chroma keying. Special emphasis is placed on creating aesthetically pleasing video composites using production tools and techniques. Typically offered Fall Spring Summer.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

MA 26500 - Linear Algebra

Credit Hours: 3.00. Introduction to linear algebra. Systems of linear equations, matrix algebra, vector spaces, determinants, eigenvalues and eigenvectors, diagonalization of matrices, applications. Not open to students with credit in MA 26200, 27200, 35000 or MA 35100. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

16 Credits

Spring 2nd Year

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

MA 26100 - Multivariate Calculus

Credit Hours: 4.00. Planes, lines, and curves in three dimensions. Differential calculus of several variables; multiple integrals. Introduction to vector calculus. Not open to students with credit in MA 17400 or MA 27100 . Typically offered Fall Spring Summer.

CGT 24800 - Visual Effects - Pyrotechnics And Destruction Effects

Credit Hours: 3.00. This course focuses on the application of visual effects methodology to create effects based on destruction techniques and pyrotechnics. Students implement projects using methods for simulating destruction, fire, and smoke. Emphasis is placed on using production tools and techniques to produce realistic and aesthetically pleasing graphics. Typically offered Fall Spring Summer.

CGT 24900 - Visual Effects - Programming

Credit Hours: 3.00. This course focuses on the solving common visual effects problems using common techniques, tools, and languages. Students write programs to solve visual effects problems using computer languages prevalent in industry. Emphasis is placed on authentic production problems. Typically offered Fall Spring Summer.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

14 Credits

Fall 3rd Year

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34600 - Digital Video And Audio

Credit Hours: 3.00. Covers the use of digital technologies for video and audio in multimedia, hypermedia, and animation products. Students examine the methods for creating, sampling, and storing digital video and digital audio and the constraints placed on these media assets when used for media-based products. Emphasis is placed upon the technology of digital video and audio, including formats, data rates, compressors, and the advantages and disadvantages of the different technologies. Typically offered Fall Spring Summer.

CGT 34800 - Photorealistic Shaders

Credit Hours: 3.00. This course focuses on the creation and application of photorealistic custom shaders to visual effect problems. Students learn to render common material photorealistically using common industry tools and techniques. Emphasis is placed on meeting specified aesthetic and photorealistic requirements within computationally constrained environments. Typically offered Fall Spring Summer.

PHIL 11400 - Global Moral Issues

Credit Hours: 3.00. A systematic and representative examination of significant contemporary moral problems with a focus on global issues such as international justice, poverty and foreign aid, nationalism and patriotism, just war, population and the environment, human rights, gender equality, and national self-determination. Typically offered Fall Spring Summer.

- Psychology Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

CGT 34900 - Visual Effects Technical Directing

Credit Hours: 3.00. This course focuses on solving visual effects problems in an open-ended scenario. The class works as a single team to solve a semester long visual effects problem. Students assume specialized roles centered around knowledge gained in previous courses to solve just-in-time problems. Typically offered Fall Spring Summer.

ENTR 31000 - Marketing And Management For New Ventures

Credit Hours: 3.00. Second in a two course sequence designed to develop a foundation of basic skills in the areas of entrepreneurship and innovation. Students completing this course will gain greater depth in areas essential to the creation and management of new ventures, including marketing and selling, finance and accounting, project management leadership, team building and ethics. Typically offered Fall Spring.

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

- Science Foundational Selective Core - Credit Hours: 3.00 *

15 Credits

Fall 4th Year

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 44800 - Visual Effects - Capstone I

Credit Hours: 3.00. Students work in a multi-disciplinary team of video compositors and visual effects technical directors to propose and implement a project for a client. Students tackle all aspects associated with the project, including narrative, compositing, graphics, and simulation development. Problem identification and selection, team dynamics principles, project management, and preliminary research and scheduling are major components of this course. Teams are responsible for project selection, client relations, and foundational activities, related to problem solutions. The course culminates in a mid-project design review report and presentation. Typically offered Fall Spring Summer.

ENTR 48000 - Entrepreneurship Capstone

Credit Hours: 3.00. The requested course will provide the opportunity to develop capstone courses for the Certificate in Entrepreneurship and Innovation Program. Capstone courses are designed to provide students with the opportunity to apply the

knowledge acquired in Certificate Program "core" and "option" courses to hands-on, real world activities related to entrepreneurship and innovation. Typically Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

- CGT VFX/Anim. Selective - Credit Hours: 3.00
- CGT Globalization Selective - Credit Hours: 3.00

17 Credits

Spring 4th Year

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Game Studies, BS

About the Program

Whether you want to contribute to blockbuster AAA titles, study virtual reality, or use gaming to help with medical therapies, Purdue University's game studies major has a place for you. Purdue has been a leader in preparing students for careers in the games and animation industries. Because our professors are interested in new ideas and uses for computer games, they will help you stretch your imagination throughout the program. You will take classes in game development and design, animation, visualization, rendering and programming.

Research projects open to undergraduate students have focused on the use of games for sustainable energy, therapy and medicine, entertainment, information visualization and more. See examples at www.gamesinnovation.org.

Game Studies Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Game Studies include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

GASD
PICGT-BS
Catalog Term: 201710
120 Credit Hours to Graduate
"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

Required Major Courses (35 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34500 - Game And Simulation Development

Credit Hours: 3.00. This course concentrates on the design of interactive activities in the areas of entertainment gaming, edutainment, training and marketing. Activities will focus heavily on preproduction and game play design. Topics will include

concept development, psychological aspects of gaming, game play, and technical implementation issues. Typically offered Fall Spring Summer.

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 44500 - Video Game Design And Development

Credit Hours: 3.00. This course examines video game design, theory, and development from aesthetic, psychological, and technical perspectives. Students will gain applied experience with a commercial game development platform. Advanced game development techniques will be taught in this course. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

Major Selectives* - Select 2 of the following courses (6 credits)

<https://polytechnic.purdue.edu/degrees/computer-graphics-technology/courses>

- CGT/ VFX Selective - Credit Hours: 3.00
- CGT/ VFX Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (64 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of

definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for Core)- Credit Hours: 3.00
- Humanities Elective - Credit Hours: 6.00
- Science Selective (satisfies Science Selective for Core) - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00
- CGT Global Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

Electives (15 credits)

- Free Electives - Credit Hours: 15.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic,

and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Selective - Credit Hours: 3.00 *

14 Credits

Spring 1st Year

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Human Culture: Humanities Core - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact

with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

- Science Foundational Selective Core - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

16 Credits

Fall 3rd Year

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34500 - Game And Simulation Development

Credit Hours: 3.00. This course concentrates on the design of interactive activities in the areas of entertainment gaming, edutainment, training and marketing. Activities will focus heavily on preproduction and game play design. Topics will include

concept development, psychological aspects of gaming, game play, and technical implementation issues. Typically offered Fall Spring Summer.

- Humanities Elective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

CGT 44500 - Video Game Design And Development

Credit Hours: 3.00. This course examines video game design, theory, and development from aesthetic, psychological, and technical perspectives. Students will gain applied experience with a commercial game development platform. Advanced game development techniques will be taught in this course. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- CGT Globalization Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and

experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

17 Credits

Spring 4th Year

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Human Centered Design & Development, BS

About the Program

Human-centered design is an approach to creating products, systems, and services that are effective and enjoyable to use. By placing the user at the center of the design process, we ensure that we create great user experiences (UX). A human-centered approach to design and development helps lead to positive user experiences, by ensuring that our artifacts are easy to learn and use, are fun and enjoyable, and help users to achieve their goals.

Human Centered Design and Development Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Human Centered Design and Development include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

HCDD

PICGT-BS

Catalog Term: 201710

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 17207 - Human-Centered Design And Development Experience Studio I

Credit Hours: 3.00. This course allows students to explore opportunities in a company-like environment. Students are novices learning about the roles they can pursue within the environment. Projects utilize human centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 17208 - Human-Centered Design And Development Learning Studio I

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

CGT 27108 - Human-Centered Design And Development Design Learning Studio II

Credit Hours: 3.00. This course explores the development of interactive and dynamic media components for web and rich Internet applications. Human-centered design is implemented into front-end interfaces to create a rich user experience. Typically offered Fall Spring Summer.

CGT 27207 - Human-Centered Design And Development Experience Studio II

Credit Hours: 3.00. This course allows students to explore opportunities in a company-like environment. Students are developing into role-players and team members that contribute significantly. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 27208 - Human-Centered Design And Development Programming Learning Studio II

Credit Hours: 3.00. A course focusing on the development of dynamic content and applications to facilitate information distribution. The course stresses development strategies for managing the rapidly changing information of corporations and organizations for just-in-time distribution, using authoring programs to create interactive multimedia products that utilize database management systems, file systems, and XML to provide a method for visualizing and manipulating that data. Significant time is spent on intermediate to advanced programming and scripting. Students are required to consider human-centered design in planning, designing, and implementing weekly assignments and projects. Typically offered Fall Spring Summer.

CGT 37108 - Human-Centered Design And Development Design Learning Studio III

Credit Hours: 3.00. This course explores the principles of design, typography, and composition to create and develop information graphics and visualizations. The focus is on creative thinking and exploring the relationship between design elements and information in a composition; communicating effectively in an information intensive era that requires more than text, number, and even static images. In this course, the students will understand different types of data, learn different visualization algorithms and design principles, and is able to use different tools to design and create meaningful information. Typically offered Fall Spring Summer.

CGT 37207 - Human-Centered Design And Development Experience Studio III

Credit Hours: 3.00. This course provides students with opportunities to explore opportunities in a company-like environment. Students are knowledgeable project members and beginning to transition into subject matter experts and managers. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 37208 - Human-Centered Design And Developing Programming Learning Studio III

Credit Hours: 3.00. This course presents and allows exploration of the most advanced technologies available for use on the web. Human-centered strategies for planning, development, and implementation will be discussed and demonstrated. Significant time is spent on advanced programming and scripting as well as manipulation and visualization of data from various sources, including robust database management systems. Students are required to consider human-centered design in planning, designing, and implementing weekly assignments and projects. Typically offered Fall Spring Summer.

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (69 credits)

- Science Selectives (satisfies Science for core) - Credit Hours: 6.00
- CGT Global Selectives - Credit Hours: 9.00
- CGT Leadership - Credit Hours: 9.00
- Psychology Selectives - Credit Hours: 9.00
- Humanities Electives - Credit Hours: 3.00
- Written/Oral Communication Selectives - Credit Hours: 9.00
- Math Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

Electives (10 credits)

- Free Elective - Credit Hours: 10.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or click here.

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- English Selective - Credit Hours: 3.00 *
- Math Selective - Credit Hours: 3.00 *

14 Credits

Spring 1st Year

CGT 17207 - Human-Centered Design And Development Experience Studio I

Credit Hours: 3.00. This course allows students to explore opportunities in a company-like environment. Students are novices learning about the roles they can pursue within the environment. Projects utilize human centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 17208 - Human-Centered Design And Development Learning Studio I

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Technical Elective - Credit Hours: 3.00

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

15 Credits

Fall 2nd Year

CGT 27207 - Human-Centered Design And Development Experience Studio II

Credit Hours: 3.00. This course allows students to explore opportunities in a company-like environment. Students are developing into role-players and team members that contribute significantly. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 27108 - Human-Centered Design And Development Design Learning Studio II

Credit Hours: 3.00. This course explores the development of interactive and dynamic media components for web and rich Internet applications. Human-centered design is implemented into front-end interfaces to create a rich user experience. Typically offered Fall Spring Summer.

- CGT Globalization Selective - Credit Hours: 3.00
- Written or Oral Communication - Credit Hours: 3.00

- Technical Elective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

CGT 27207 - Human-Centered Design And Development Experience Studio II

Credit Hours: 3.00. This course allows students to explore opportunities in a company-like environment. Students are developing into role-players and team members that contribute significantly. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 27208 - Human-Centered Design And Development Programming Learning Studio II

Credit Hours: 3.00. A course focusing on the development of dynamic content and applications to facilitate information distribution. The course stresses development strategies for managing the rapidly changing information of corporations and organizations for just-in-time distribution, using authoring programs to create interactive multimedia products that utilize database management systems, file systems, and XML to provide a method for visualizing and manipulating that data. Significant time is spent on intermediate to advanced programming and scripting. Students are required to consider human-centered design in planning, designing, and implementing weekly assignments and projects. Typically offered Fall Spring Summer.

- Science Foundational Selective Core - Credit Hours: 3.00 *
- Human Cultures: Humanities Core - Credit Hours: 3.00
- Psychology Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

CGT 37108 - Human-Centered Design And Development Design Learning Studio III

Credit Hours: 3.00. This course explores the principles of design, typography, and composition to create and develop information graphics and visualizations. The focus is on creative thinking and exploring the relationship between design elements and information in a composition; communicating effectively in an information intensive era that requires more than text, number, and even static images. In this course, the students will understand different types of data, learn different visualization algorithms and design principles, and is able to use different tools to design and create meaningful information. Typically offered Fall Spring Summer.

CGT 37207 - Human-Centered Design And Development Experience Studio III

Credit Hours: 3.00. This course provides students with opportunities to explore opportunities in a company-like environment. Students are knowledgeable project members and beginning to transition into subject matter experts and managers. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

- CGT Leadership Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Psychology Selective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

CGT 37207 - Human-Centered Design And Development Experience Studio III

Credit Hours: 3.00. This course provides students with opportunities to explore opportunities in a company-like environment. Students are knowledgeable project members and beginning to transition into subject matter experts and managers. Projects utilize human-centered design principles to provide a rich user experience. Typically offered Fall Spring Summer.

CGT 37208 - Human-Centered Design And Developing Programming Learning Studio III

Credit Hours: 3.00. This course presents and allows exploration of the most advanced technologies available for use on the web. Human-centered strategies for planning, development, and implementation will be discussed and demonstrated. Significant time is spent on advanced programming and scripting as well as manipulation and visualization of data from various sources, including robust database management systems. Students are required to consider human-centered design in planning, designing, and implementing weekly assignments and projects. Typically offered Fall Spring Summer.

- CGT Leadership Selective - Credit Hours: 3.00
- Psychology Selective - Credit Hours: 3.00
- Written or Oral Communication - Credit Hours: 3.00

CGT 25001 - Computer Graphics Professional Practices I

Credit Hours: 1.00. CGT 25001 is a course in the CGT professional practices sequence, with a focus on student professional development and communications in the field of computer graphics. Emphasis will be placed on industry engagement for the development and refinement of a student's professional resume and portfolio; and professional communications practices necessary for securing professional practical work experience. CGT 25001 will be taught in a seminar format with one meeting per week focused on guest speakers, status checks for portfolio and resume development, and professional networking. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

CGT 41101 - Contemporary Problems In Applied Computer Graphics I

Credit Hours: 2.00. Groups will identify, design, qualify, and plan a final project relative to existing or emerging issues within applied computer graphics. This project will be done in conjunction with industry and faculty engagement. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. This course is followed by CGT 41201 which includes the execution and evaluation of the capstone project planned in CGT 41101. Typically offered Fall Spring Summer.

- Written or Oral Communication - Credit Hours: 3.00
- CGT Globalization Selective - Credit Hours: 3.00
- Science Foundational Selective Core - Credit Hours: 3.00*
- Free Elective - Credit Hours: 4.00

15 Credits

Spring 4th Year

CGT 41201 - Contemporary Problems In Applied Computer Graphics II

Credit Hours: 2.00. CGT 41201 is the second course in the CGT applied computer graphics capstone sequence with a focus on execution and evaluation of the senior capstone project. Emphasis will be placed on industry engagement for the execution of the project plan that was developed in CGT 41101. Students will work in teams to execute the project plan; develop and execute a project evaluation plan, and make a professional final presentation to industry members, faculty, and peers. Students will execute a project refinement process based on feedback received and incorporate that into a final presentation and project report. CGT 41201 will be taught in a seminar format with one meeting per week focused on project status checks, evaluation plan development and execution, and project presentations. Typically offered Fall Spring Summer.

- CGT Globalization Selective - Credit Hours: 3.00
- CGT Leadership Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

CGT 45001 - Computer Graphics Professional Practices II

Credit Hours: 1.00. Preparation for professional employment in computer graphics professions. Topics covered include professional and technical writing, correspondence, corporate and freelance employment considerations; portfolio planning; and interviewing. Students will arrange interviews and portfolio reviews. Typically offered Fall Spring Summer.

15 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Virtual Product Integration, BS

About the Program

Modern product manufacturing is increasingly supported by data-driven design, production and support throughout a product's lifecycle. With a major in virtual product integration (VPI), you will use the latest tools to effectively communicate and support each step in the product's lifecycle. In your classes, you will define, build, and visualize 3D models to demonstrate how products are built, how they are made, and how they are serviced and supported. Your work will be done primarily with product lifecycle management (PLM) software tools for simulation, computer-aided design (CAD), and product data management (PDM).

Virtual Product Integration Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Virtual Product Integration include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

VIPI

PICGT-BS

Catalog Term: 201710

120 Credit Hours to Graduate
"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

Required Major Courses (32 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 22600 - Introduction To Constraint-Based Modeling

Credit Hours: 3.00. This course explores the techniques used in the construction and manipulation of constraint-based solid models and assemblies. Emphasizes extracting data from databases. Downstream applications of data and the impact on overall product design processes are explored. Typically offered Fall Spring Summer.

CGT 32600 - Graphics Standards For Product Definition

Credit Hours: 3.00. Introduction to product data exchange and interoperability standards, ANSI and NIST product documentation standards, product modeling standards, methodologies for technology selection, implementation, and evaluation. This course supports the product archival and communication processes in a PLM environment. Typically offered Summer Fall Spring.

CGT 42300 - Product Data Management

Credit Hours: 3.00. This course provides an understanding of the types of data generated and used in the product lifecycle, the current tools and methodologies in the management of that data, and system analysis and implementation techniques for using PDM as the backbone supporting a company's product development and implementation activities. Interaction between various enterprise systems is also discussed. Typically offered Fall Spring Summer.

CGT 42600 - Industry Applications Of Simulation And Visualization

Credit Hours: 3.00. This course focuses on developing mathematically accurate physical-visual simulations of mechanisms, systems, and assemblies. Topics include physical system analysis; coordinate systems; inverse kinematics; linear, rotational, and reciprocating motion. Simulations will be created using modeling technology, programmed scripting, and diverse software. Typically offered Fall Spring Summer.

Major Selectives* - Select 3 of the following courses (9 credits)

<http://www.tech.purdue.edu/CGT/academics/coursepages.cfm>

- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (64 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from

interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for Core)- Credit Hours: 3.00
- Humanities Elective - Credit Hours: 6.00
- Science Selective (satisfies Science Selective for Core) - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00
- CGT Global Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

Electives (15 credits)

- Free Electives - Credit Hours: 15.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1

- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or click here.

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- English Selective - Credit Hours: 3.00 *

14 Credits

Spring 1st Year

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Human Culture: Humanities Core - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

CGT 22600 - Introduction To Constraint-Based Modeling

Credit Hours: 3.00. This course explores the techniques used in the construction and manipulation of constraint-based solid models and assemblies. Emphasizes extracting data from databases. Downstream applications of data and the impact on overall product design processes are explored. Typically offered Fall Spring Summer.

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

- CGT Selective - Credit Hours: 3.00
- Science Foundational Selective Core - Credit Hours: 3.00 *

- Free Elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

CGT 32600 - Graphics Standards For Product Definition

Credit Hours: 3.00. Introduction to product data exchange and interoperability standards, ANSI and NIST product documentation standards, product modeling standards, methodologies for technology selection, implementation, and evaluation. This course supports the product archival and communication processes in a PLM environment. Typically offered Summer Fall Spring.

CGT 42300 - Product Data Management

Credit Hours: 3.00. This course provides an understanding of the types of data generated and used in the product lifecycle, the current tools and methodologies in the management of that data, and system analysis and implementation techniques for using PDM as the backbone supporting a company's product development and implementation activities. Interaction between various enterprise systems is also discussed. Typically offered Fall Spring Summer.

- CGT Globalization Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

CGT 42600 - Industry Applications Of Simulation And Visualization

Credit Hours: 3.00. This course focuses on developing mathematically accurate physical-visual simulations of mechanisms, systems, and assemblies. Topics include physical system analysis; coordinate systems; inverse kinematics; linear, rotational, and reciprocating motion. Simulations will be created using modeling technology, programmed scripting, and diverse software. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- Humanities Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

17 Credits

Spring 4th Year

CGT 41100 - Contemporary Problems In Applied Computer Graphics

Credit Hours: 3.00. Groups will identify, design, qualify, manage, create, and present a final project relative to existing or emerging issues within applied computer graphics. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. The course concludes with faculty, peers, and practicing professionals evaluating oral, written, and media presentations of final projects. Typically offered Fall Spring.

- Free Elective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Visual Effects Compositing, BS

About the Program

No movie today is completed without the use of digital enhancements. A compositor is responsible for layering all digital effects in the final movie, including color correction, integration of rendered 3-D models, object removal, and set extensions. The visual effects compositing major gives you experience creating effects for video in both live action and computer-generated integration.

Visual Effects Compositing Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Visual Effects Compositing include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

VECO

PICGT-BS

Catalog Term: 201710

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (35 credits)

Required Major Courses (29 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

CGT 24600 - Compositing I

Credit Hours: 3.0. This course focuses on applying node-based video compositing techniques as applied to 3D visual effects and animation. Students explore the major areas of video compositing, including node-based workflows, integration with 3D animation and visual effects tools, image tracking, rotoscoping, and chroma keying. Special emphasis is placed on creating aesthetically pleasing video composites using production tools and techniques. Typically offered Fall Spring Summer.

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

CGT 34600 - Digital Video And Audio

Credit Hours: 3.00. Covers the use of digital technologies for video and audio in multimedia, hypermedia, and animation products. Students examine the methods for creating, sampling, and storing digital video and digital audio and the constraints placed on these media assets when used for media-based products. Emphasis is placed upon the technology of digital video and audio, including formats, data rates, compressors, and the advantages and disadvantages of the different technologies. Typically offered Fall Spring Summer.

CGT 44600 - Post-Production And Special Effects For Computer Animation

Credit Hours: 3.00. A variety of commercial applications of technical animation and spatial graphics are analyzed and produced, with special emphasis upon client development, design, organization, scripting, storyboarding, technical production, management, and evaluation. Typically offered Spring.

CGT 44800 - Visual Effects - Capstone I

Credit Hours: 3.00. Students work in a multi-disciplinary team of video compositors and visual effects technical directors to propose and implement a project for a client. Students tackle all aspects associated with the project, including narrative, compositing, graphics, and simulation development. Problem identification and selection, team dynamics principles, project management, and preliminary research and scheduling are major components of this course. Teams are responsible for project selection, client relations, and foundational activities, related to problem solutions. The course culminates in a mid-project design review report and presentation. Typically offered Fall Spring Summer.

Major Selectives* - Select 2 of the following courses (6 credits)

<https://polytechnic.purdue.edu/degrees/computer-graphics-technology/courses>

- CGT/ VFX Selective - Credit Hours: 3.00
- CGT/ VFX Selective - Credit Hours: 3.00

Other Departmental /Program Course Requirements (67 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches

including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

ENTR 31000 - Marketing And Management For New Ventures

Credit Hours: 3.00. Second in a two course sequence designed to develop a foundation of basic skills in the areas of entrepreneurship and innovation. Students completing this course will gain greater depth in areas essential to the creation and

management of new ventures, including marketing and selling, finance and accounting, project management leadership, team building and ethics. Typically offered Fall Spring.

ENTR 48000 - Entrepreneurship Capstone

Credit Hours: 3.00. The requested course will provide the opportunity to develop capstone courses for the Certificate in Entrepreneurship and Innovation Program. Capstone courses are designed to provide students with the opportunity to apply the knowledge acquired in Certificate Program "core" and "option" courses to hands-on, real world activities related to entrepreneurship and innovation. Typically Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

PHIL 11400 - Global Moral Issues

Credit Hours: 3.00. A systematic and representative examination of significant contemporary moral problems with a focus on global issues such as international justice, poverty and foreign aid, nationalism and patriotism, just war, population and the environment, human rights, gender equality, and national self-determination. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning

experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for core) - Credit Hours: 3.00
- Science Selective (satisfies Science for core) - Credit Hours: 3.00
- Foreign Language Electives - Credit Hours: 6.00
- Psychology Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 6.00
- CGT Global Selective - Credit Hours: 3.00

Electives (18 credits)

- Free Elective - Credit Hours: 18.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career

opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

- Foreign Language Selective - Credit Hours: 3.00
- English Selective - Credit Hours: 3.00 *

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

14 Credits

Spring 1st Year

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

CGT 24100 - Introduction to Computer Animation

Credit Hours: 3.00. This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline-based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling, rendering methods, hierarchical linking, and kinematic fundamentals. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

- Foreign Language Selective - Credit Hours: 3.00

15 Credits

Fall 2nd Year

CGT 24600 - Compositing I

Credit Hours: 3.0. This course focuses on applying node-based video compositing techniques as applied to 3D visual effects and animation. Students explore the major areas of video compositing, including node-based workflows, integration with 3D animation and visual effects tools, image tracking, rotoscoping, and chroma keying. Special emphasis is placed on creating aesthetically pleasing video composites using production tools and techniques. Typically offered Fall Spring Summer.

CGT 34000 - Digital Lighting And Rendering for Computer Animation

Credit Hours: 3.00. The development of a working knowledge of perspective display of three-dimensional models and the resulting effects of projected light sources on shade, shadow, color, texture, and atmospheric effects in architecture, product illustration, and animation. Emphasis will be placed on lighting design, analysis, and photorealistic simulation for commercial graphic applications. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

- CGT VFX Selective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

- Human Cultures: Humanities Core - Credit Hours: 3.00
- Science Foundational Selective Core - Credit Hours: 3.00 *
- Technical Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

CGT 34600 - Digital Video And Audio

Credit Hours: 3.00. Covers the use of digital technologies for video and audio in multimedia, hypermedia, and animation products. Students examine the methods for creating, sampling, and storing digital video and digital audio and the constraints placed on these media assets when used for media-based products. Emphasis is placed upon the technology of digital video and audio, including formats, data rates, compressors, and the advantages and disadvantages of the different technologies. Typically offered Fall Spring Summer.

PHIL 11400 - Global Moral Issues

Credit Hours: 3.00. A systematic and representative examination of significant contemporary moral problems with a focus on

global issues such as international justice, poverty and foreign aid, nationalism and patriotism, just war, population and the environment, human rights, gender equality, and national self-determination. Typically offered Fall Spring Summer.

ENGL 42000 - Business Writing

Credit Hours: 3.00. Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, e-mail, resumes (print and online), oral presentations. Typically offered Summer Fall Spring.

- CGT VFX Selective - Credit Hours: 3.00
- Psychology Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

CGT 44600 - Post-Production And Special Effects For Computer Animation

Credit Hours: 3.00. A variety of commercial applications of technical animation and spatial graphics are analyzed and produced, with special emphasis upon client development, design, organization, scripting, storyboarding, technical production, management, and evaluation. Typically offered Spring.

ENTR 31000 - Marketing And Management For New Ventures

Credit Hours: 3.00. Second in a two course sequence designed to develop a foundation of basic skills in the areas of entrepreneurship and innovation. Students completing this course will gain greater depth in areas essential to the creation and management of new ventures, including marketing and selling, finance and accounting, project management leadership, team building and ethics. Typically offered Fall Spring.

COM 31400 - Advanced Presentational Speaking

Credit Hours: 3.00. Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

CGT 44800 - Visual Effects - Capstone I

Credit Hours: 3.00. Students work in a multi-disciplinary team of video compositors and visual effects technical directors to propose and implement a project for a client. Students tackle all aspects associated with the project, including narrative, compositing, graphics, and simulation development. Problem identification and selection, team dynamics principles, project management, and preliminary research and scheduling are major components of this course. Teams are responsible for project selection, client relations, and foundational activities, related to problem solutions. The course culminates in a mid-project design review report and presentation. Typically offered Fall Spring Summer.

ENTR 48000 - Entrepreneurship Capstone

Credit Hours: 3.00. The requested course will provide the opportunity to develop capstone courses for the Certificate in Entrepreneurship and Innovation Program. Capstone courses are designed to provide students with the opportunity to apply the knowledge acquired in Certificate Program "core" and "option" courses to hands-on, real world activities related to entrepreneurship and innovation. Typically Fall Spring.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

- CGT Globalization Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

17 Credits

Spring 4th Year

CGT 41100 - Contemporary Problems In Applied Computer Graphics

Credit Hours: 3.00. Groups will identify, design, qualify, manage, create, and present a final project relative to existing or emerging issues within applied computer graphics. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. The course concludes with faculty, peers, and practicing professionals evaluating oral, written, and media presentations of final projects. Typically offered Fall Spring.

- Free Elective - Credit Hours: 3.00

- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

12 Credits

Notes

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Web Programming & Design, BS

About the Program

Before most web sites and mobile applications are launched, there is a vast amount of planning, programming and testing that takes place. When you study web programming and design at Purdue University, you will gain expertise in all aspects of this development process.

Each web and mobile project has its own set of requirements. Will it need to allow financial transactions? Does it need to store and retrieve customer information? How will it operate on different platforms? The courses in the web programming and design major will help you answer those questions and design a final product that is functional, secure, and user-friendly.

From PHP and open source MySQL to the Microsoft and ASP environments, you will gain a broad spectrum of programming capabilities and concepts that will allow you to prosper and adapt in this constantly changing industry.

Web Programming and Design Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Computer Graphics Technology/Web Programming and Design include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PICGT-BS

120 Credit Hours to Graduate

"C-" or better required in all major courses

Departmental/Program Major Courses (41 credits)

Required Major Courses (32 credits)

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

CGT 35300 - Principles Of Interactive And Dynamic Media

Credit Hours: 3.00. This course explores the development of interactive and dynamic media components for web and interactive media products. The course examines the design, creation and integration of 2D animation, 2D games, text, sound, video, programming, and databases for use in web and other interactive media. Typically offered Fall Spring Summer.

CGT 35600 - Web Programming, Development And Data Integration

Credit Hours: 3.00. A course focusing on the development of dynamic content and applications to facilitate information distribution. The course stresses development strategies for managing the rapidly changing information of corporations and organizations for just-in-time distribution, using authoring programs to create interactive multimedia products that utilize database management systems, file systems, and XML to provide a method for visualizing and manipulating that data. Significant time is spent on intermediate to advanced programming and scripting. Typically offered Fall Spring Summer.

CGT 45600 - Advanced Web Programming, Development And Data Integration

Credit Hours: 3.00. This course presents the advanced technologies available for use on the World Wide Web and within

corporate intranet environments. Emphasis and discussion is focused on the advantages and disadvantages of these technologies as well as on implementation to create unique solutions for business and industry. Strategies for planning, development, and implementation will be discussed and demonstrated. Significant time is spent on advanced programming and scripting as well as manipulation and visualization of data from various sources, including robust database management systems. Students are required to plan, design and implement a major project. Typically offered Fall Spring.

Major Selectives* - Select 3 of the following courses (9 credits)

<http://www.tech.purdue.edu/CGT/academics/coursepages.cfm>

- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00
- CGT Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (64 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Human Cultures (satisfies Humanities for Core)- Credit Hours: 3.00

- Humanities Elective - Credit Hours: 6.00
- Science Selective (satisfies Science Selective for Core) - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00
- CGT Global Selective - Credit Hours: 3.00
- Technical Electives - Credit Hours: 9.00

Electives (15 credits)

- Free Electives - Credit Hours: 15.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Fall 1st Year

CGT 10101 - Foundations Of Computer Graphics Technology

Credit Hours: 2.00. This course provides a foundational overview of computer graphics. The topics include the applications of computer graphics in today's world, basic technical elements of computer graphics, a review of current and future career opportunities in the field, and areas of potential research and study in computer graphics technology. Typically offered Fall Spring Summer.

CGT 11800 - Fundamentals Of Imaging Technology

Credit Hours: 3.00. This course provides a foundation for the development and use of raster and vector images for a variety of industries. Full-color images and illustrations are produced using computer technologies, with a focus on both technical and

aesthetic aspects. Topics include color theory and perception, surface and lighting analysis, rendering techniques, and technical characteristics. Typically offered Spring Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- English Selective* - Credit Hours: 3.00

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

Credits 14

Spring 1st Year

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 14100 - Internet Foundations Technologies And Development

Credit Hours: 3.00. (CNIT 14100) The course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool-independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation, and security issues. PC literacy required. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

Credits 15

Fall 2nd Year

CGT 21500 - Computer Graphics Programming I

Credit Hours: 3.00. This course focuses on programming fundamentals, logic, and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. Typically offered Fall Spring.

- Human Cultures: Humanities Core* - Credit Hours: 3.00

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Free Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

Credits 16

Spring 2nd Year

CGT 25600 - Principles Of User Experience Design

Credit Hours: 3.00. This course introduces students to the process of user-centered design of computer systems humans interact with. Students learn how to draw upon principles of usability and user interface design rooted in human psychology and user research in order to conceptualize, prototype, and evaluate computer systems. Topics include processes such as user research, conceptual design, prototyping, and evaluation and concepts such as visual hierarchy, usability, information architecture, navigation, and more. The course is platform-independent and encourages students to experiment with new and emerging technologies. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Science Foundational Selective Core* - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

- Free Elective - Credit Hours: 3.00

Credits 16

Fall 3rd Year

CGT 35600 - Web Programming, Development And Data Integration

Credit Hours: 3.00. A course focusing on the development of dynamic content and applications to facilitate information distribution. The course stresses development strategies for managing the rapidly changing information of corporations and organizations for just-in-time distribution, using authoring programs to create interactive multimedia products that utilize database management systems, file systems, and XML to provide a method for visualizing and manipulating that data. Significant time is spent on intermediate to advanced programming and scripting. Typically offered Fall Spring Summer.

- CGT Selective - Credit Hours: 3.00
- Humanities Elective - Credit Hours: 3.00
- Advanced English Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

Credits 15

Spring 3rd Year

CGT 45600 - Advanced Web Programming, Development And Data Integration

Credit Hours: 3.00. This course presents the advanced technologies available for use on the World Wide Web and within corporate intranet environments. Emphasis and discussion is focused on the advantages and disadvantages of these technologies as well as on implementation to create unique solutions for business and industry. Strategies for planning, development, and implementation will be discussed and demonstrated. Significant time is spent on advanced programming and scripting as well as manipulation and visualization of data from various sources, including robust database management systems. Students are required to plan, design and implement a major project. Typically offered Fall Spring.

- CGT Selective - Credit Hours: 3.00
- CGT Globalization Selective - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Management Selective - Credit Hours: 3.00

Credits 15

Fall 4th Year

CGT 35300 - Principles Of Interactive And Dynamic Media

Credit Hours: 3.00. This course explores the development of interactive and dynamic media components for web and interactive media products. The course examines the design, creation and integration of 2D animation, 2D games, text, sound, video, programming, and databases for use in web and other interactive media. Typically offered Fall Spring Summer.

- Humanities Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

MGMT 45500 - Legal Background For Business I

Credit Hours: 3.00. The nature and place of law in our society, national and international, social and moral bases of law enactment, regulation of business, legal liability, and enforcement procedures. Special emphasis on torts, contracts, and agency. No credit to students in the School of Management. Typically offered Fall Spring Summer.

- Technical Elective - Credit Hours: 3.00

Credits 17

Spring 4th Year

CGT 41100 - Contemporary Problems In Applied Computer Graphics

Credit Hours: 3.00. Groups will identify, design, qualify, manage, create, and present a final project relative to existing or emerging issues within applied computer graphics. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communications skills, and quality management. The course concludes with faculty, peers, and practicing professionals evaluating oral, written, and media presentations of final projects. Typically offered Fall Spring.

- Free Elective - Credit Hours: 3.00
- Communication Selective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

Credits 12

Note

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all CGT courses.

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

Purdue policy states that a student may attempt a course no more than three (3) times. An attempt is defined as all courses displayed on a student's transcript including, but not limited to A,B,C,D,E,F,W,WF,I and IF

For Supplemental CGT Information click here.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Construction Graphics Minor

With access to the latest technology, the minor in construction graphics - building information modeling (BIM) will expose students to BIM in the architecture, engineering and construction (AEC) industry. Students who complete the minor will gain knowledge in current and emerging graphics theories and computer graphics technologies associated with design, documentation, modeling in construction.

Availability

The BIM minor is open to any Purdue University student on the West Lafayette campus.

Requirements

- All courses in the minor must be taken for a grade. P/NP is not an option.
- A grade of "C-" or better must be obtained in all BIM minor classes.
- Only students pursuing four-year degrees are eligible for the BIM minor.

Prerequisite Courses

- None

Required Courses (12 credit hours)

CGT 26200 - Introduction To Construction Graphics

Credit Hours: 3.00. Study of graphic solutions to problems conditioned by traditional and emerging construction document standards. Construction document creation is based on current architectural engineering and construction (AEC) standards with a focus on residential settings. Introductory 2D documentation will progress into 3D modeling techniques. Typically offered Fall Spring Summer.

CGT 36000 - Applications Of Construction Documentation I

Credit Hours: 3.00. Standards applied to the creation and distribution of documentation within the construction enterprise. Construction documents are created as products of a computer model. Residential modeling is followed by an introduction to light commercial documentation. Topics include a study of blueprint reading and 5D building information modeling (BIM) estimation of material extracted from a model. Typically offered Summer Fall Spring.

CGT 46200 - Applications Of Construction Documentation II

Credit Hours: 3.00. Creating, archiving, integrating, qualifying and utilizing computer-generated, three-dimensional architectural models in a light commercial construction enterprise. Topics include components of MEP, fire protection, blueprint reading and 4D BIM scheduling. Credit cannot be obtained for both CGT 36200 and CGT 46200. Typically offered Fall Spring Summer.

CGT 46000 - Building Information Modeling For Commercial Construction

Credit Hours: 3.00. The study of commercial jobsite planning and coordination. Trade coordination, visualization, and communication are emphasized. Activities include collision detection reports, construction animations, and professional presentations. Typically offered Summer Fall Spring.

Note

Other independent courses may be offered upon student request to the major professor in charge of BIM.

Product Lifecycle Management Minor

A minor in product lifecycle management (PLM) will expose any Purdue major to manufacturing graphics expertise. Students who complete the minor will gain applied knowledge in current and emerging graphics theories and computer technologies associated with the design, documentation, and manufacture and support of products and related services.

Availability

The PLM minor is open only to any Purdue University West Lafayette campus major.

Requirements

All courses in the minor must be taken for a grade. P/NP is not an option.

A grade of "C-" or better must be obtained in all PLM minor classes.

Only students pursuing four-year degrees are eligible for the PLM minor.

Prerequisite Courses

One of the following prerequisite courses is required before enrolling in CGT 22600:

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

CGT 11600 - Geometric Modeling For Visualization And Communication

Credit Hours: 3.00. A core introductory computer graphics course that provides entry-level experiences in geometric modeling. Students develop geometric analysis and modeling construction techniques and processes to produce accurate computer models for graphic visualization and communication. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

CGT 16400 - Graphics For Civil Engineering And Construction

Credit Hours: 2.00. An introductory course in the area of computer graphics documentation for civil engineering- and construction-related professions. Experiences focus on accepted industry graphic standards and their technical visual applications. The course emphasizes creation and distribution of graphics to enable communication. Typically offered Fall Spring.

- An approved substitution

Required Courses (9 credit hours)

All courses in the minor must be taken for a grade. A grade of "C-" or better is required in all classes.

Select three from the following:

CGT 22600 - Introduction To Constraint-Based Modeling

Credit Hours: 3.00. This course explores the techniques used in the construction and manipulation of constraint-based solid models and assemblies. Emphasizes extracting data from databases. Downstream applications of data and the impact on overall product design processes are explored. Typically offered Fall Spring Summer.

CGT 32600 - Graphics Standards For Product Definition

Credit Hours: 3.00. Introduction to product data exchange and interoperability standards, ANSI and NIST product documentation standards, product modeling standards, methodologies for technology selection, implementation, and evaluation. This course supports the product archival and communication processes in a PLM environment. Typically offered Summer Fall Spring.

Choose one

CGT 42300 - Product Data Management

Credit Hours: 3.00. This course provides an understanding of the types of data generated and used in the product lifecycle, the current tools and methodologies in the management of that data, and system analysis and implementation techniques for using PDM as the backbone supporting a company's product development and implementation activities. Interaction between various enterprise systems is also discussed. Typically offered Fall Spring Summer.

CGT 42600 - Industry Applications Of Simulation And Visualization

Credit Hours: 3.00. This course focuses on developing mathematically accurate physical-visual simulations of mechanisms, systems, and assemblies. Topics include physical system analysis; coordinate systems; inverse kinematics; linear, rotational, and reciprocating motion. Simulations will be created using modeling technology, programmed scripting, and diverse software. Typically offered Fall Spring Summer.

Note

Other courses outside of the PLM minor offered by the CGT will not be available for enrollment for non-CGT majors who are accepted in the CGT/PLM minor.

School of Engineering Technology

Overview

In Purdue's engineering technology degree programs, students learn about -- and more important, practice -- designing, building, testing and refining in several engineering technology fields. From electrical to mechanical to manufacturing, class projects help you discover how to use the right materials and the right processes to help your project work efficiently and be attractive to consumers.

Faculty

<https://polytechnic.purdue.edu/schools/engineering-technology/directory>

Contact Information

School of Engineering Technology

Knoy Hall, Room 145

401 N. Grant St.

West Lafayette, IN 47907

Phone: 765.494.9099

Email: soet@purdue.edu

Contact an advisor

Graduate Information

For Graduate Information please see Engineering Technology Graduate Program Information.

Audio Engineering Technology, BS

About the Program

When you major in audio engineering technology at Purdue University, you'll learn to create sound by building a guitar or a pick-up. You will focus on designing, building, and testing a variety of technologies, such as microphone amplifiers, mixers and other signal processors, Bluetooth and other radio frequency channels, power amplifiers, and loud speakers. Then you will combine these audio elements to properly record, play, and reinforce sound in a public performance space.

Audio Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Audio Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIECET-BS

AUET

120-cr for graduation

"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (55 credits)

ECET 17700 - Data Acquisition And Systems Control

Credit Hours: 3.00. Fundamental electrical parameters and measurement techniques are introduced. These are then applied to implementing power interfaces, actuators and sensors. Modules that provide signal conditioning, data conversion, filtering and controllers are evaluated. A full, closed loop control system is built and evaluated. Typically offered Fall Spring Summer.

ECET 17900 - Introduction To Digital Systems

Credit Hours: 3.00. This course introduces computing systems and defines the major classes of computing devices. Sequential and concurrent operations, along with logic and control structures, are covered. Knowledge of fundamental computing principles is discovered. Common software tools are used to create, test, and debug systems. Systems are constructed from standard blocks with a focus on subsystem operation and performance, troubleshooting/debugging and testing. Common applications of embedded systems are introduced. Typically offered Fall Spring Summer.

ECET 22700 - DC And Pulse Electronics

Credit Hours: 3.00. Capacitors, inductors, oscillators, rectifiers, bipolar and MOSFET power switches, switching power supplies, half-and full-H bridges, switching audio power amplifiers, and linear regulators are studied. Computer-aided analysis of circuits is utilized. Typically offered Fall Spring Summer.

ECET 22900 - Concurrent Digital Systems

Credit Hours: 3.00. This course establishes a foundation for concurrent digital systems. Common methods of describing digital circuit operation are studied along with the techniques for translation between any two methods. Basic building blocks of digital systems are defined and applied. Analysis techniques for combinational and sequential logic circuits or subsystems are covered. Computer-based development tools, programmable logic devices, and technical reference sources are used to build, test, and evaluate digital systems. Typically offered Fall Spring Summer.

ECET 27000 - Electronics Prototype Development And Construction

Credit Hours: 3.00. This course introduces project planning and basic concepts in electronic design automation (EDA). The student develops a portion of an electronic system using EDA, design for testing (DFT), surface mount technology (SMT), design for manufacturability (DFM), and component characteristic selection techniques. New construction and testing techniques are introduced. Typically offered Fall Spring Summer.

ECET 27400 - Wireless Communications

Credit Hours: 3.00. The theory and techniques of wirelessly sending information (voice, music, data) from one location to another is studied from a systems point of view. This includes a signal analysis, modulation techniques, transmitters, receivers, low noise amplifiers, and filters in the RF frequency spectrum. In addition, special topics of current interest are introduced. This course incorporated a student-based communication design and analysis laboratory. Typically offered Fall Spring Summer.

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ECET 33900 - Digital Signal Processing

Credit Hours: 3.00. The course introduces students to the fundamental principles associated with processing discrete time signals. The architecture, instruction set and hardware and software development tools associated with a fixed point general purpose VLSI digital signal processor are examined. Some common real-time applications are implemented such as digital filters and DFT-based spectral estimation on a typical fixed point digital signal processor. Typically offered Fall Spring Summer.

ECET 37600 - Electrical Energy Systems

Credit Hours: 3.00. This course is an introduction to a wide range of electrical energy systems technologies. Topics include fundamentals of energy conversion, which includes large- and small-scale generation, energy storage, and end-use. Processes include coal, nuclear, solar, wind, hydro, and biomass and their application in central and distributed power systems. The power grid, micro-grids, and smart grid technologies are also explored. The goal is to introduce students to the breadth of technology in the rapidly growing and changing field of energy systems. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

ECET 38800 - Analog IC Applications

Credit Hours: 3.00. This course is a study of the applications of analog integrated circuits. Topics include linear amplifiers, IC specifications, linear regulators, waveform generation, linear and switched-capacitor active filters, and nonlinear circuit applications. Computer aided analysis of these circuits is also presented. Typically offered Fall Spring Summer.

ECET 42800 - Audio Electronics-Selected Topics

Credit Hours: 3.00. Define, implement, and evaluate the performance of the electronic elements in a professional audio system such as preamplifiers, signal encoding and transmission, signal reception and decoding, mixers, post processors, power amplifiers, limiting and protection, and intelligent power supplies. Both analog and digital signal processing may be implemented in each of the electronic elements. Typically offered Fall Spring Summer.

- ECET Selective (choose from list) - Credit Hours: 3.00

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

- Senior Capstone I Selective (choose from list) - Credit Hours: 3.00
- Senior Capstone II Selective (choose from list) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (62 credits)

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

MET 49000 - Special Topics In MET

Credit Hours: 1.00 to 3.00. Group instruction in new or specialty areas of mechanical engineering technology is provided by MET faculty, subject to MET curriculum subcommittee approval. Hours, subject matter, and credit to be arranged by faculty. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PHYS 21900 - General Physics II

Credit Hours: 4.00. Electricity, light, and modern physics, primarily for technology students. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

THTR 16300 - Introduction To Sound Design And Technology

Credit Hours: 2.00. Introduction to theatre sound design and technology for general theatre students. Involvement in Department of Theatre production program. Typically offered Fall Spring.

THTR 20100 - Theatre Appreciation

Credit Hours: 3.00. Understanding and appreciation of the theatre's role in the modern world, dramatic structure and analysis, the actor, director, designer, and critic; attendance at current stage productions; class discussion of production elements. Typically offered Summer Fall Spring. CTL:IFA 1302 Theatre Appreciation

THTR 25300 - Survey Of Audio Production

Credit Hours: 3.00. An introduction to theories and techniques of audio production. Typically offered Fall.

THTR 26300 - Introduction To Sound Studios

Credit Hours: 3.00. An introduction to theories and techniques of audio production. Typically offered Fall Spring.

THTR 35300 - Theater Audio Techniques I

Credit Hours: 3.00. Offered 2002-2003 and alternate years. A theoretical and practical study of the technical aspects of audio as they relate to theatre. The course will include specifications, layout and installation techniques, operation, and maintenance of theatre sound systems, etc. Majors have priority. Typically offered Fall.

THTR 36800 - Theatre Production II

Credit Hours: 1.00 or 2.00. The study and application of theatre practices. Students will be assigned to all levels of departmental production of applied practice. Permission of instructor required. Typically offered Fall Spring.

DANC 36800 - Dance Sound Design

Credit Hours: 1.00. The study and application of sound design for dance, with emphasis on creation of sound scores for Modern Dance concerts. Instructor permission required. Typically offered Fall Spring.

- Business Selective and General Education Selective (choose from list, with the requirement that the Human Cultures: Behavioral/Social Sciences category for core must be met by either the Business Sel. or a General Education Sel.) - Credit Hours: 6.00
- Communication Selectives (choose from list) - Credit Hours: 6.00

English Composition Selective (3 credits)

(satisfies Written Communication for core)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

Industrial Economics Selective (3 credits)

choose from

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

Statistics Selective (3 credits)

choose from

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic

probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

Advanced Theatre Sound Selective (3 credits)

choose from

THTR 36300 - Sound Design

Credit Hours: 3.00. Offered in 2015-2016 and alternate years. Project course in utilizing the principles of design as they can be formed into auditory response and environment. Emphasis on the interrelationship among all aspects of production and how sound becomes a building block toward total picturization. Majors have priority. Typically offered Fall.

THTR 56300 - Advanced Sound Design

Credit Hours: 3.00. Advanced study of the principles of sound design for theatre and theory application to specific problems. Offered in alternate years. Typically offered Fall Spring.

THTR 56900 - Special Problems In Audio Production

Credit Hours: 3.00. Advanced study and application of sound studio production techniques to different audio related disciplines. Permission of instructor required. Typically offered Fall Spring.

THTR 59700 - Production And Design Seminar

Credit Hours: 3.00. Training in theatrical design based upon a variety of theatrical presentation forms. The type of presentation alternates, and specific content varies each semester. Typically offered Fall Spring Summer.

Free Elective (3 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fall 1st Year

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

16 Credits

Spring 1st Year

ECET 17700 - Data Acquisition And Systems Control

Credit Hours: 3.00. Fundamental electrical parameters and measurement techniques are introduced. These are then applied to implementing power interfaces, actuators and sensors. Modules that provide signal conditioning, data conversion, filtering and controllers are evaluated. A full, closed loop control system is built and evaluated. Typically offered Fall Spring Summer.

ECET 17900 - Introduction To Digital Systems

Credit Hours: 3.00. This course introduces computing systems and defines the major classes of computing devices. Sequential

and concurrent operations, along with logic and control structures, are covered. Knowledge of fundamental computing principles is discovered. Common software tools are used to create, test, and debug systems. Systems are constructed from standard blocks with a focus on subsystem operation and performance, troubleshooting/debugging and testing. Common applications of embedded systems are introduced. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

16 Credits

Fall 2nd Year

ECET 22700 - DC And Pulse Electronics

Credit Hours: 3.00. Capacitors, inductors, oscillators, rectifiers, bipolar and MOSFET power switches, switching power supplies, half-and full-H bridges, switching audio power amplifiers, and linear regulators are studied. Computer-aided analysis of circuits is utilized. Typically offered Fall Spring Summer.

ECET 22900 - Concurrent Digital Systems

Credit Hours: 3.00. This course establishes a foundation for concurrent digital systems. Common methods of describing digital circuit operation are studied along with the techniques for translation between any two methods. Basic building blocks of digital systems are defined and applied. Analysis techniques for combinational and sequential logic circuits or subsystems are covered. Computer-based development tools, programmable logic devices, and technical reference sources are used to build, test, and evaluate digital systems. Typically offered Fall Spring Summer.

PHYS 21900 - General Physics II

Credit Hours: 4.00. Electricity, light, and modern physics, primarily for technology students. Typically offered Summer Fall Spring.

THTR 16300 - Introduction To Sound Design And Technology

Credit Hours: 2.00. Introduction to theatre sound design and technology for general theatre students. Involvement in Department of Theatre production program. Typically offered Fall Spring.

- Communication Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

ECET 27000 - Electronics Prototype Development And Construction

Credit Hours: 3.00. This course introduces project planning and basic concepts in electronic design automation (EDA). The student develops a portion of an electronic system using EDA, design for testing (DFT), surface mount technology (SMT), design for manufacturability (DFM), and component characteristic selection techniques. New construction and testing techniques are introduced. Typically offered Fall Spring Summer.

ECET 27400 - Wireless Communications

Credit Hours: 3.00. The theory and techniques of wirelessly sending information (voice, music, data) from one location to another is studied from a systems point of view. This includes a signal analysis, modulation techniques, transmitters, receivers, low noise amplifiers, and filters in the RF frequency spectrum. In addition, special topics of current interest are introduced. This course incorporated a student-based communication design and analysis laboratory. Typically offered Fall Spring Summer.

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

THTR 20100 - Theatre Appreciation

Credit Hours: 3.00. Understanding and appreciation of the theatre's role in the modern world, dramatic structure and analysis, the actor, director, designer, and critic; attendance at current stage productions; class discussion of production elements. Typically offered Summer Fall Spring. CTL:IFA 1302 Theatre Appreciation

- Communication Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ECET 37600 - Electrical Energy Systems

Credit Hours: 3.00. This course is an introduction to a wide range of electrical energy systems technologies. Topics include fundamentals of energy conversion, which includes large- and small-scale generation, energy storage, and end-use. Processes include coal, nuclear, solar, wind, hydro, and biomass and their application in central and distributed power systems. The power grid, micro-grids, and smart grid technologies are also explored. The goal is to introduce students to the breadth of technology in the rapidly growing and changing field of energy systems. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

MET 49000 - Special Topics In MET

Credit Hours: 1.00 to 3.00. Group instruction in new or specialty areas of mechanical engineering technology is provided by MET faculty, subject to MET curriculum subcommittee approval. Hours, subject matter, and credit to be arranged by faculty. Typically offered Fall Spring Summer.

THTR 25300 - Survey Of Audio Production

Credit Hours: 3.00. An introduction to theories and techniques of audio production. Typically offered Fall.

THTR 26300 - Introduction To Sound Studios

Credit Hours: 3.00. An introduction to theories and techniques of audio production. Typically offered Fall Spring.

15 Credits

Spring 3rd Year

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

ECET 38800 - Analog IC Applications

Credit Hours: 3.00. This course is a study of the applications of analog integrated circuits. Topics include linear amplifiers, IC specifications, linear regulators, waveform generation, linear and switched-capacitor active filters, and nonlinear circuit applications. Computer aided analysis of these circuits is also presented. Typically offered Fall Spring Summer.

- Business Selective - Credit Hours: 3.00 **

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

THTR 36800 - Theatre Production II

Credit Hours: 1.00 or 2.00. The study and application of theatre practices. Students will be assigned to all levels of departmental production of applied practice. Permission of instructor required. Typically offered Fall Spring.

DANC 36800 - Dance Sound Design

Credit Hours: 1.00. The study and application of sound design for dance, with emphasis on creation of sound scores for Modern Dance concerts. Instructor permission required. Typically offered Fall Spring.

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

16 Credits

Fall 4th Year

ECET 33900 - Digital Signal Processing

Credit Hours: 3.00. The course introduces students to the fundamental principles associated with processing discrete time signals. The architecture, instruction set and hardware and software development tools associated with a fixed point general purpose VLSI digital signal processor are examined. Some common real-time applications are implemented such as digital filters and DFT-based spectral estimation on a typical fixed point digital signal processor. Typically offered Fall Spring Summer.

THTR 35300 - Theater Audio Techniques I

Credit Hours: 3.00. Offered 2002-2003 and alternate years. A theoretical and practical study of the technical aspects of audio as they relate to theatre. The course will include specifications, layout and installation techniques, operation, and maintenance of theatre sound systems, etc. Majors have priority. Typically offered Fall.

- Senior Capstone Selective I - Credit Hours: 3.00
- ECET Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00

15 Credits

Spring 4th Year

ECET 42800 - Audio Electronics-Selected Topics

Credit Hours: 3.00. Define, implement, and evaluate the performance of the electronic elements in a professional audio system such as preamplifiers, signal encoding and transmission, signal reception and decoding, mixers, post processors, power amplifiers, limiting and protection, and intelligent power supplies. Both analog and digital signal processing may be implemented in each of the electronic elements. Typically offered Fall Spring Summer.

- Senior Capstone Selective II - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Advanced Theater Sound Selective - Credit Hours: 3.00

12 Credits

Notes

*Fulfills University Core Curriculum requirement.

**Human Cultures Behavioral/Social Science for University Core may be selected to satisfy either the Business Selective or a General Education Selective requirement.

1. 120 semester credits and a 2.0 Graduation GPA are required for the Bachelor of Science degree.
2. Students must earn a "D-" or better in all courses.
3. Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF and all graded attempts.
4. Senior Capstone Selective I/II and 12 hours of ECET Selectives must be taken at the Purdue University location conferring the degree.
5. 32 credit hours of 300-level or higher courses must be completed at Purdue University.

Choose from list: Refer to the Supplemental Information sheet for 2016-17 Audio Engineering Technology for a complete list of selectives and requirements.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

A foreign language is not required. However, foreign language courses may be used to meet General Education Selective requirements and will satisfy the Human Cultures: Humanities requirement for the University Core Curriculum. Acceptable languages include:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Electrical Engineering Technology, BS

About the Program

When you study electrical engineering technology, you study the lifeblood of today's technology: electronics and computers. Electronics technology is a part of most everything society relies on, from air conditioning to airplanes, and from trains to televisions. And because technology is constantly evolving, you will be engaged in learning methods that will help you adapt to and embrace new technologies and their uses.

Students in this program can apply to participate in a five-year combined bachelor's/master's degree program in electrical engineering technology.

Electrical Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Electrical Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIECET-BS

EETC

120-cr for graduation

"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (55 credits)

ECET 17700 - Data Acquisition And Systems Control

Credit Hours: 3.00. Fundamental electrical parameters and measurement techniques are introduced. These are then applied to implementing power interfaces, actuators and sensors. Modules that provide signal conditioning, data conversion, filtering and controllers are evaluated. A full, closed loop control system is built and evaluated. Typically offered Fall Spring Summer.

ECET 17900 - Introduction To Digital Systems

Credit Hours: 3.00. This course introduces computing systems and defines the major classes of computing devices. Sequential and concurrent operations, along with logic and control structures, are covered. Knowledge of fundamental computing principles is discovered. Common software tools are used to create, test, and debug systems. Systems are constructed from standard blocks with a focus on subsystem operation and performance, troubleshooting/debugging and testing. Common applications of embedded systems are introduced. Typically offered Fall Spring Summer.

ECET 22700 - DC And Pulse Electronics

Credit Hours: 3.00. Capacitors, inductors, oscillators, rectifiers, bipolar and MOSFET power switches, switching power supplies, half-and full-H bridges, switching audio power amplifiers, and linear regulators are studied. Computer-aided analysis of circuits is utilized. Typically offered Fall Spring Summer.

ECET 22900 - Concurrent Digital Systems

Credit Hours: 3.00. This course establishes a foundation for concurrent digital systems. Common methods of describing digital circuit operation are studied along with the techniques for translation between any two methods. Basic building blocks of digital systems are defined and applied. Analysis techniques for combinational and sequential logic circuits or subsystems are covered. Computer-based development tools, programmable logic devices, and technical reference sources are used to build, test, and evaluate digital systems. Typically offered Fall Spring Summer.

ECET 27000 - Electronics Prototype Development And Construction

Credit Hours: 3.00. This course introduces project planning and basic concepts in electronic design automation (EDA). The student develops a portion of an electronic system using EDA, design for testing (DFT), surface mount technology (SMT), design for manufacturability (DFM), and component characteristic selection techniques. New construction and testing techniques are introduced. Typically offered Fall Spring Summer.

ECET 27400 - Wireless Communications

Credit Hours: 3.00. The theory and techniques of wirelessly sending information (voice, music, data) from one location to another is studied from a systems point of view. This includes a signal analysis, modulation techniques, transmitters, receivers, low noise amplifiers, and filters in the RF frequency spectrum. In addition, special topics of current interest are introduced. This course incorporated a student-based communication design and analysis laboratory. Typically offered Fall Spring Summer.

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

ECET 37600 - Electrical Energy Systems

Credit Hours: 3.00. This course is an introduction to a wide range of electrical energy systems technologies. Topics include fundamentals of energy conversion, which includes large- and small-scale generation, energy storage, and end-use. Processes include coal, nuclear, solar, wind, hydro, and biomass and their application in central and distributed power systems. The power grid, micro-grids, and smart grid technologies are also explored. The goal is to introduce students to the breadth of technology in the rapidly growing and changing field of energy systems. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

- ECET Advanced Analysis Selective (choose from ECET 33700 or ECET 33900) - Credit Hours: 3.00
- ECET Selectives (choose from list) - Credit Hours: 12.00

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

- Senior Capstone I Selective (choose from list) - Credit Hours: 3.00
- Senior Capstone II Selective (choose from list) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (62 credits)

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PHYS 21900 - General Physics II

Credit Hours: 4.00. Electricity, light, and modern physics, primarily for technology students. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Business Selective and General Education Selective (choose from list, with the requirement that the Human Cultures: Behavioral/Social Sciences category for core must be met by either the Business Selective or a General Education Selective) - Credit Hours: 6.00
- General Education Human Cultures: Humanities Selective (choose from list) - Credit Hours: 3.00
- General Education Selectives (choose from list) - Credit Hours: 6.00
- Communication Selectives (choose from list) - Credit Hours: 6.00
- Technical Selectives (choose from list: 9 additional credit hours of *technical courses*, including additional ECET courses) - Credit Hours 9.00

English Composition Selective (3 credits)

(satisfies Written Communication for core)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

Industrial Economics Selective (3 credits)

choose from

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

Statistics Selective (3 credits)

choose from

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

Free Electives (3 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2

- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or [click here](#).

Program Requirements

Accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fall 1st Year

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

16 Credits

Spring 1st Year

ECET 17700 - Data Acquisition And Systems Control

Credit Hours: 3.00. Fundamental electrical parameters and measurement techniques are introduced. These are then applied to implementing power interfaces, actuators and sensors. Modules that provide signal conditioning, data conversion, filtering and controllers are evaluated. A full, closed loop control system is built and evaluated. Typically offered Fall Spring Summer.

ECET 17900 - Introduction To Digital Systems

Credit Hours: 3.00. This course introduces computing systems and defines the major classes of computing devices. Sequential and concurrent operations, along with logic and control structures, are covered. Knowledge of fundamental computing principles is discovered. Common software tools are used to create, test, and debug systems. Systems are constructed from standard blocks with a focus on subsystem operation and performance, troubleshooting/debugging and testing. Common applications of embedded systems are introduced. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

16 Credits

Fall 2nd Year

ECET 22700 - DC And Pulse Electronics

Credit Hours: 3.00. Capacitors, inductors, oscillators, rectifiers, bipolar and MOSFET power switches, switching power supplies, half-and full-H bridges, switching audio power amplifiers, and linear regulators are studied. Computer-aided analysis of circuits is utilized. Typically offered Fall Spring Summer.

ECET 22900 - Concurrent Digital Systems

Credit Hours: 3.00. This course establishes a foundation for concurrent digital systems. Common methods of describing digital circuit operation are studied along with the techniques for translation between any two methods. Basic building blocks of digital systems are defined and applied. Analysis techniques for combinational and sequential logic circuits or subsystems are covered. Computer-based development tools, programmable logic devices, and technical reference sources are used to build, test, and evaluate digital systems. Typically offered Fall Spring Summer.

PHYS 21900 - General Physics II

Credit Hours: 4.00. Electricity, light, and modern physics, primarily for technology students. Typically offered Summer Fall Spring.

- General Education Selective - Credit Hours: 3.00 *
- Communication Selective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

ECET 27000 - Electronics Prototype Development And Construction

Credit Hours: 3.00. This course introduces project planning and basic concepts in electronic design automation (EDA). The student develops a portion of an electronic system using EDA, design for testing (DFT), surface mount technology (SMT), design for manufacturability (DFM), and component characteristic selection techniques. New construction and testing techniques are introduced. Typically offered Fall Spring Summer.

ECET 27400 - Wireless Communications

Credit Hours: 3.00. The theory and techniques of wirelessly sending information (voice, music, data) from one location to another is studied from a systems point of view. This includes a signal analysis, modulation techniques, transmitters, receivers, low noise amplifiers, and filters in the RF frequency spectrum. In addition, special topics of current interest are introduced. This course incorporated a student-based communication design and analysis laboratory. Typically offered Fall Spring Summer.

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

- General Education Selective - Credit Hours: 3.00 **
- Communication Selective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ECET 33900 - Digital Signal Processing

Credit Hours: 3.00. The course introduces students to the fundamental principles associated with processing discrete time signals. The architecture, instruction set and hardware and software development tools associated with a fixed point general purpose VLSI digital signal processor are examined. Some common real-time applications are implemented such as digital filters and DFT-based spectral estimation on a typical fixed point digital signal processor. Typically offered Fall Spring Summer.

ECET 37600 - Electrical Energy Systems

Credit Hours: 3.00. This course is an introduction to a wide range of electrical energy systems technologies. Topics include fundamentals of energy conversion, which includes large- and small-scale generation, energy storage, and end-use. Processes include coal, nuclear, solar, wind, hydro, and biomass and their application in central and distributed power systems. The power grid, micro-grids, and smart grid technologies are also explored. The goal is to introduce students to the breadth of technology in the rapidly growing and changing field of energy systems. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

STAT 22500 - Introduction To Probability Models

Credit Hours: 3.00. An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables, and moments. Credit cannot be given for more than one of STAT 22500, STAT 31100, or STAT 41600. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and

interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

- ECET Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

- Business Selective - Credit Hours: 3.00 **
- Technical Selective - Credit Hours: 3.00
- ECET Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- Senior Capstone Selective I - Credit Hours: 3.00
- ECET Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00
- Technical Selective - Credit Hours: 3.00
- Technical Selective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- Senior Capstone Selective II - Credit Hours: 3.00
- ECET Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

12 Credits

Notes

*Fulfills University Core Curriculum requirement.

** Human Cultures Behavioral/Social Science for University Core may be selected to satisfy either the Business Selective or a General Education Selective requirement.

1. 120 semester credits and a 2.0 Graduation GPA are required for the Bachelor of Science degree.
2. Students must earn a "D-" or better in all courses. Pass/no pass grading allowed for General Education Selectives and Free Electives (up to 15 hrs).
3. Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF and all graded attempts.
4. Senior Capstone Selective I/II and 12 hours of ECET Selectives must be taken at the Purdue University location conferring the degree.
5. 32 credit hours of 300-level or higher courses must be completed at Purdue University.

Choose from list: Refer to the Supplemental Information sheet for 2016-17 Electrical Engineering Technology for a complete list of selectives and requirements.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

A foreign language is not required. However, foreign language courses may be used to meet General Education Selective requirements and will satisfy the Human Cultures: Humanities requirement for the University Core Curriculum. Acceptable languages include:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Manufacturing Engineering Technology, Automation and Systems Integration Engineering Technology

About the Program

This is one of three majors offered for students who seek to contribute at the interface between manufacturing, electrical, mechanical, and computing areas in primarily industrial environments.

When you major in automation and systems integration engineering technology, you will address what is needed to move product concepts into efficient, automated production. The curriculum focuses on the entire design and manufacturing process; you'll understand how each team member benefits the system.

Automation and systems integration engineering technology website (<https://polytechnic.purdue.edu/degrees/automation-and-systems-integration-engineering-technology>)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Automation and Systems Integration Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIMFET-BS

ASET

120 credits for graduation

"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (59 credits)

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

MFET 24800 - Introduction To Robotics

Credit Hours: 3.00. This course introduces the fundamental concepts of robotics with emphasis on hands-on experience in programming and application of articulated industrial robots. Topics covered include introduction of robotics, robot classifications, robot programming, end-of-arm tooling, safety considerations, automation sensors, robot and system integration, and fundamentals of kinematics. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers, PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

- Continuous Control Selective - Credit Hours: 3.00

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

ASET Courses (24 credits, included in required major courses total)

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

- Manufacturing Selective - Credit Hours: 3.00

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MFET 48000 - Project Planning For Integration

Credit Hours: 3.00. This is the first of two courses that complete the capstone requirement. The course focus is on the project planning, system design and management activities necessary for the implementation of a successful manufacturing integration project. Typically offered Fall Spring Summer.

MFET 48100 - Integration Of Manufacturing Systems

Credit Hours: 3.00. This capstone course emphasizes the integration of manufacturing activities into a complete system. The course brings together elements of prior courses including: production processes, planning systems, system integration, and manufacturing controls. Primary course activities are centered around a semester-long team project. Typically offered Fall Spring.

- Manufacturing/Controls/Graphic Selective - Credit Hours: 3.00

CNIT 17500 - Visual Programming

Credit Hours: 3.00. This course introduces event-driven application development and programming using a visual programming environment. Topics include problem solving and program design, control structures, objects and events, user interface construction, documentation, and program testing. Credit may be established in only one of: CPT 15500 or CPT 17500 or CPT 25000. PC literacy required. Typically offered Fall Spring Summer.

- CNIT or CS Selective (CNIT 10500, CS 15800, or CS 15900)

Other Departmental/Program Course Requirements (57 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered

design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Physics Selective (choose from PHYS 21800, PHYS 22000, PHYS 17200) (satisfies Science for core)
- Science Selective - Credit Hours: 3.00
- Freshman Composition Selective (satisfies Written Communication for core) - Credit Hours: 3.00
- Human Cultures: Humanities Foundation Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Human Cultures: Behavior/Social Sciences Foundation Selective (satisfies Human Cultures: Behavioral Sciences for core) - Credit Hours: 3.00
- Humanities/Social Science Elective - Credit Hours: 3.00
- CGT Selective (choose from CGT 11000, CGT 16300, or IT 10500) - Credit Hours: 2.00
- Statistics/Quality Selective (choose between STAT 30100 or IT 34200) - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

Free Electives (4 credits)

Free Electives - Credit Hours: 4.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website or click here.

Fall 1st Year

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of

definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

- Freshman Composition Selective - Credit Hours: 3.00

16 Credits

Spring 1st Year

CNIT 17500 - Visual Programming

Credit Hours: 3.00. This course introduces event-driven application development and programming using a visual programming environment. Topics include problem solving and program design, control structures, objects and events, user interface construction, documentation, and program testing. Credit may be established in only one of: CPT 15500 or CPT 17500 or CPT 25000. PC literacy required. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

- Humanities Foundation Selective - Credit Hours: 3.00 *

15 Credits

Fall 2nd Year

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers

and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

- Behavioral/Social Science Foundation Selective - Credit Hours: 3.00 *
- Computer Graphics Selective - Credit Hours: 2.00

15 Credits

Spring 2nd Year

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of

electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

- Physics Selective - Credit Hours: 4.00 *
- Free Elective - Credit Hours: 1.00

14 Credits

Fall 3rd Year

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

- Science Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers, PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

MFET 24800 - Introduction To Robotics

Credit Hours: 3.00. This course introduces the fundamental concepts of robotics with emphasis on hands-on experience in programming and application of articulated industrial robots. Topics covered include introduction of robotics, robot classifications, robot programming, end-of-arm tooling, safety considerations, automation sensors, robot and system integration, and fundamentals of kinematics. Typically offered Fall Spring Summer.

- CNIT or CS Selective - Credit Hours: 3.00
- Manufacturing Selective - Credit Hours: 3.00
- Statistics or Quality Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MFET 48000 - Project Planning For Integration

Credit Hours: 3.00. This is the first of two courses that complete the capstone requirement. The course focus is on the project

planning, system design and management activities necessary for the implementation of a successful manufacturing integration project. Typically offered Fall Spring Summer.

- Manufacturing/Controls/Graphics Selective - Credit Hours: 3.00
- Continuous Controls Selective - Credit Hours: 3.00

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

15 Credits

Spring 4th Year

MFET 48100 - Integration Of Manufacturing Systems

Credit Hours: 3.00. This capstone course emphasizes the integration of manufacturing activities into a complete system. The course brings together elements of prior courses including: production processes, planning systems, system integration, and manufacturing controls. Primary course activities are centered around a semester-long team project. Typically offered Fall Spring.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

- Humanities/Social Science Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Note

*Fulfills University core.

120 semester credits and a 2.0 graduation GPA are required for the Bachelor of Science degree.

Students must earn a "D-" or better in all courses.

Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF, and all graded attempts.

32 credit hours of 300-level or higher courses must be completed at Purdue University.

Manufacturing Engineering Technology, Mechatronics Concentration, BS

About the Program

This is one of three majors offered for students who seek to contribute at the interface between manufacturing, electrical, mechanical, and computing areas in primarily industrial environments. When you major in mechatronics engineering technology, you will focus on the development of the electromechanical products that are ubiquitous in modern life, dealing with interconnections that allow electronic control of mechanical, pneumatic, and hydraulic systems.

[Mechatronics Engineering Technology Website](#)

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Mechatronics Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIMFET-BS
MHET

120-cr for graduation
"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (35 credits)

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

MET 38200 - Controls And Instrumentation For Automation

Credit Hours: 3.00. Study of the procedures and techniques essential to industrial measurement and transmission of data is provided in the areas of microprocessor control, process control, and automated testing. Concepts of hysteresis, repeatability, weighted signals, span, suppression, range, and closed loop control are emphasized. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers, PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

- Manufacturing Selective - Credit Hours: 3.00

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

Mechatronics Concentration Courses - (24 credits)

- Mechatronics Selective - Credit Hours: 3.00
- Controls Elective - Credit Hours: 3.00

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

ECET 32700 - Instrumentation And Data Acquisition Design

Credit Hours: 3.00. This course builds upon the prerequisite knowledge and covers implementation of electric systems to measure and record mechanical, electrical, and biological parameters. Signal characteristics, transducer specification and selection, signal conditioning and transmission design, data conversion, software, and an overall system error budget are developed. Typically offered Fall Spring Summer.

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ECET 43000 - Electrical And Electronic Product And Program Management

Credit Hours: 3.00. This course deals with the planning of electrical and electronic products and projects. Research methods are studied to support new product development including customer needs and the development of engineering requirements. Formal techniques such as functional decomposition, top-down and bottom-up design techniques are studied. Planning and design alternatives to meet cost, performance, and user-interface goals are emphasized. Technical topics are revisited with emphasis on new applications. The various types and levels of new product system tests are studied. New product planning, scheduling, and management techniques are studied, along with the usage of software tools for project scheduling and management. Creativity is stressed, and the different approaches taken by the designers are compared and discussed. Typically offered Fall Spring Summer.

ECET 46000 - Project Design And Development

Credit Hours: 3.00. An extensive individual or small group design project is carried out with guidance from a faculty advisor. This course includes determining customer requirements, considering design alternatives, prototyping, project integration, and testing. The project is completed as a robust prototype. The course concludes with a formal written report and a presentation of the project to faculty and invited industrial guests. Typically offered Fall Spring Summer.

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

Other Departmental/Program Course Requirements (57 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science Selective - Credit Hours: 3.00
- Freshmen Composition Selective (satisfies Written Communication for core) - Credit Hours: 3.00
- Human Cultures: Humanities Foundation Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Human Cultures: Behavior/Social Sciences Foundation Selective (satisfies Human Cultures: Behavioral Sciences for core) - Credit Hours: 3.00
- Humanities/Social Science Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

PHYS Selective - choose from (4 credits)

(satisfies Science for core)

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PHYS 22000 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, for students not specializing in physics. Typically offered Fall Spring Summer.
CTL:IPS 1751 Algebra-based Physics I

PHYS 17200 - Modern Mechanics

Credit Hours: 4.00. Introductory calculus-based physics course using fundamental interactions between atoms to describe

Newtonian mechanics, conservation laws, energy quantization, entropy, the kinetic theory of gases, and related topics in mechanics and thermodynamics. Emphasis is on using only a few fundamental principles to describe physical phenomena extending from nuclei to galaxies. 3-D graphical simulations and numerical problem solving by computer are employed by the student from the very beginning. Typically offered Summer Fall Spring. CTL:IPS 1753 Calculus-based Physics I

CGT Selective - choose from (2 credits)

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

IT 10500 - Industrial Technology Introduction To Design

Credit Hours: 3.00. This course develops students' problem solving skills, with emphasis placed upon the concept of developing a three-dimensional model of an object. Students focus on the application of visualization processes and tools currently used in the design and manufacturing environments. Typically offered Fall Spring.

Statistics/Quality Selective - choose between

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical

methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

Free Electives (4 credits)

University Core Requirements

- Human Cultures: Behavioral/Social Sciences
- Human Cultures: Humanities
- Information Literacy
- Oral Communication
- Quantitative Reasoning
- Science #1
- Science #2
- Science, Technology & Society
- Written Communication

Program Requirements

Accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fall 1st Year

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate

the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Freshman Composition Selective - Credit Hours: 3.00 *

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

16 Credits

Spring 1st Year

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

- Humanities Foundation Selective - Credit Hours: 3.00 *

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

- Free Elective (ECET 17900 is recommended) - Credit Hours: 3.00

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of

electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

- Computer Graphics Selective - Credit Hours: 2.00

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

- Physics Selective - Credit Hours: 4.00 *
- Behavioral/Social Science Foundation Selective - Credit Hours: 3.00 *

16 Credits

Fall 3rd Year

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

- Science Selective - Credit Hours: 3.00 *

15 Credits

Spring 3rd Year

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers,

PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

- Statistics or Quality Selective - Credit Hours: 3.00
- Manufacturing Selective - Credit Hours: 3.00

ECET 32700 - Instrumentation And Data Acquisition Design

Credit Hours: 3.00. This course builds upon the prerequisite knowledge and covers implementation of electric systems to measure and record mechanical, electrical, and biological parameters. Signal characteristics, transducer specification and selection, signal conditioning and transmission design, data conversion, software, and an overall system error budget are developed. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

ECET 43000 - Electrical And Electronic Product And Program Management

Credit Hours: 3.00. This course deals with the planning of electrical and electronic products and projects. Research methods are studied to support new product development including customer needs and the development of engineering requirements. Formal techniques such as functional decomposition, top-down and bottom-up design techniques are studied. Planning and design alternatives to meet cost, performance, and user-interface goals are emphasized. Technical topics are revisited with emphasis on new applications. The various types and levels of new product system tests are studied. New product planning, scheduling, and management techniques are studied, along with the usage of software tools for project scheduling and management. Creativity is stressed, and the different approaches taken by the designers are compared and discussed. Typically offered Fall Spring Summer.

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

- Mechatronics Selective - Credit Hours: 3.00
- Controls Selective - Credit Hours: 3.00

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

15 Credits

Spring 4th Year

ECET 46000 - Project Design And Development

Credit Hours: 3.00. An extensive individual or small group design project is carried out with guidance from a faculty advisor. This course includes determining customer requirements, considering design alternatives, prototyping, project integration, and testing. The project is completed as a robust prototype. The course concludes with a formal written report and a presentation of the project to faculty and invited industrial guests. Typically offered Fall Spring Summer.

- Technical Selective - Credit Hours: 3.00
- Humanities/Social Science Elective - Credit Hours: 3.00

MET 38200 - Controls And Instrumentation For Automation

Credit Hours: 3.00. Study of the procedures and techniques essential to industrial measurement and transmission of data is provided in the areas of microprocessor control, process control, and automated testing. Concepts of hysteresis, repeatability, weighted signals, span, suppression, range, and closed loop control are emphasized. Typically offered Fall Spring Summer.

- Free Elective - Credit Hours: 1.00

13 Credits

Note

*Fulfills University core.

1. 120 semester credits and a 2.0 Graduation GPA are required for the Bachelor of Science degree.
2. Students must earn a "D-" or better in all courses.
3. Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF and all graded attempts.
4. 32 credit hours of 300-level or higher courses must be completed at Purdue University.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Manufacturing Engineering Technology, Robotics Concentration, BS

About the Program

This is one of three majors offered in the Purdue Polytechnic Institute for students who seek to contribute at the intersection between manufacturing, electrical, mechanical, and computing areas in primarily industrial environments. When you major in robotics engineering technology, you will develop and apply robotic solutions to a broad range of industrial and consumer problems. Robots help people and companies be more productive and safer, and they help explore more frontiers.

Robotics Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Robotics Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIMFET-BS

ROET

120-cr for graduation

"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (32 credits)

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

MFET 24800 - Introduction To Robotics

Credit Hours: 3.00. This course introduces the fundamental concepts of robotics with emphasis on hands-on experience in programming and application of articulated industrial robots. Topics covered include introduction of robotics, robot classifications, robot programming, end-of-arm tooling, safety considerations, automation sensors, robot and system integration, and fundamentals of kinematics. Typically offered Fall Spring Summer.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers, PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them

to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

- Manufacturing Selective - Credit Hours: 3.00

Robotics Concentration Courses (24 credits)

- Mechatronics/Controls Selective - Credit Hours: 3.00
- Manufacturing/Controls Selective - Credit Hours: 3.00

ECET 32700 - Instrumentation And Data Acquisition Design

Credit Hours: 3.00. This course builds upon the prerequisite knowledge and covers implementation of electric systems to measure and record mechanical, electrical, and biological parameters. Signal characteristics, transducer specification and selection, signal conditioning and transmission design, data conversion, software, and an overall system error budget are developed. Typically offered Fall Spring Summer.

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ECET 43000 - Electrical And Electronic Product And Program Management

Credit Hours: 3.00. This course deals with the planning of electrical and electronic products and projects. Research methods are studied to support new product development including customer needs and the development of engineering requirements. Formal techniques such as functional decomposition, top-down and bottom-up design techniques are studied. Planning and design alternatives to meet cost, performance, and user-interface goals are emphasized. Technical topics are revisited with emphasis on new applications. The various types and levels of new product system tests are studied. New product planning, scheduling, and management techniques are studied, along with the usage of software tools for project scheduling and management. Creativity is stressed, and the different approaches taken by the designers are compared and discussed. Typically offered Fall Spring Summer.

ECET 46000 - Project Design And Development

Credit Hours: 3.00. An extensive individual or small group design project is carried out with guidance from a faculty advisor. This course includes determining customer requirements, considering design alternatives, prototyping, project integration, and testing. The project is completed as a robust prototype. The course concludes with a formal written report and a presentation of the project to faculty and invited industrial guests. Typically offered Fall Spring Summer.

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

MFET 34800 - Advanced Industrial Robotics

Credit Hours: 3.00. This course introduces the fundamentals of robotics with emphasis on solutions to the basic problems in kinematics, dynamics, and control of robot manipulators of serial type. It covers modeling of rigid body motion, kinematics of articulated multi-body systems, robot dynamics and simulation, sensing and actuation, robot controls, task planning, and robot operations. Typically offered Fall Spring Summer.

Other Departmental/Program Course Requirements (57 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis,

data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science Selective - Credit Hours: 3.00
- Freshman Composition Selective (satisfies Written Communication for core) - Credit Hours: 3.00
- Human Cultures: Humanities Foundation Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- Human Cultures: Behavior/Social Sciences Foundation Selective (satisfies Human Cultures: Behavioral Sciences for core) - Credit Hours: 3.00
- Humanities/Social Science Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 4.00

PHYS Selective - choose from (4 credits)

(satisfies Science for core)

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PHYS 22000 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, for students not specializing in physics. Typically offered Fall Spring Summer.
CTL:IPS 1751 Algebra-based Physics I

PHYS 17200 - Modern Mechanics

Credit Hours: 4.00. Introductory calculus-based physics course using fundamental interactions between atoms to describe Newtonian mechanics, conservation laws, energy quantization, entropy, the kinetic theory of gases, and related topics in mechanics and thermodynamics. Emphasis is on using only a few fundamental principles to describe physical phenomena extending from nuclei to galaxies. 3-D graphical simulations and numerical problem solving by computer are employed by the student from the very beginning. Typically offered Summer Fall Spring. CTL:IPS 1753 Calculus-based Physics I

CGT Selective - choose from (2 credits)

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

IT 10500 - Industrial Technology Introduction To Design

Credit Hours: 3.00. This course develops students' problem solving skills, with emphasis placed upon the concept of developing a three-dimensional model of an object. Students focus on the application of visualization processes and tools currently used in the design and manufacturing environments. Typically offered Fall Spring.

Statistics/Quality Selective - choose between (3 credits)

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

University Core Requirements

- Human Cultures: Behavioral/Social Sciences
- Human Cultures: Humanities
- Information Literacy
- Oral Communication
- Quantitative Reasoning
- Science #1
- Science #2
- Science, Technology & Society
- Written Communication

Program Requirements

Accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fall 1st Year

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Freshman Composition Selective - Credit Hours: 3.00 *

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

16 Credits

Spring 1st Year

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

- Humanities Foundation Selective - Credit Hours: 3.00 *

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

15 Credits

Fall 2nd Year

MFET 24800 - Introduction To Robotics

Credit Hours: 3.00. This course introduces the fundamental concepts of robotics with emphasis on hands-on experience in programming and application of articulated industrial robots. Topics covered include introduction of robotics, robot classifications, robot programming, end-of-arm tooling, safety considerations, automation sensors, robot and system integration, and fundamentals of kinematics. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

- Computer Graphics Selective - Credit Hours: 2.00

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

MET 11300 - Mechanics Applications

Credit Hours: 1.00. Concepts of mechanics are applied to structures, machine components, and frames. Stresses and deformations resulting from axial, shear, torsional, and flexural loads are considered. Kinematics and kinetics of motion are introduced. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

- Physics Selective - Credit Hours: 4.00 *
- Behavioral/Social Science Foundation Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MFET 34400 - Automated Manufacturing Processes

Credit Hours: 3.00. Shop floor components of computer-integrated manufacturing are explored. Emphasis is focused on current applications and programming practices of various computer automated manufacturing processes and technologies. Topics include CAD/CAM integration, computer-assisted numerical control programming for 2 ½ and 3 axis contouring, and CNC program verification. Typically offered Fall Spring Summer.

- Science Selective - Credit Hours: 3.00 *

ECET 33700 - Analog Signal Processing

Credit Hours: 3.00. This advanced course in analog circuit analysis stresses network theorems and solutions of time and frequency domain problems. Transform circuit and signal analyses, using Laplace and Fourier techniques, are applied in active filter design. Software tools are employed to solve mathematical problems. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

15 Credits

Spring 3rd Year

- Manufacturing Selective - Credit Hours: 3.00

ECET 38001 - Global Professional Issues In Engineering Technology

Credit Hours: 3.00. This course addresses professional ethics, legal issues, professional development, technology transfer, and

corporate culture as they relate to EET graduates and our global society. Information relating to personal job and career choices, resumes, and interviews are included. Typically offered Fall Spring Summer.

MFET 37400 - Manufacturing Integration I

Credit Hours: 3.00. The fundamentals of data communications and local area networks are taught in order to show students how to integrate modern manufacturing systems. Emphasis is on the various levels of communications between shop floor computers, PLCs, robots, and automatic identification equipment. Database technology is used as an integration tool. This course prepares students for the MFET capstone course. Typically offered Fall Spring Summer.

- Statistics or Quality Selective - Credit Hours: 3.00

ECET 32700 - Instrumentation And Data Acquisition Design

Credit Hours: 3.00. This course builds upon the prerequisite knowledge and covers implementation of electric systems to measure and record mechanical, electrical, and biological parameters. Signal characteristics, transducer specification and selection, signal conditioning and transmission design, data conversion, software, and an overall system error budget are developed. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

ECET 43000 - Electrical And Electronic Product And Program Management

Credit Hours: 3.00. This course deals with the planning of electrical and electronic products and projects. Research methods are studied to support new product development including customer needs and the development of engineering requirements. Formal techniques such as functional decomposition, top-down and bottom-up design techniques are studied. Planning and design alternatives to meet cost, performance, and user-interface goals are emphasized. Technical topics are revisited with emphasis on new applications. The various types and levels of new product system tests are studied. New product planning, scheduling, and management techniques are studied, along with the usage of software tools for project scheduling and management. Creativity is stressed, and the different approaches taken by the designers are compared and discussed. Typically offered Fall Spring Summer.

MFET 34800 - Advanced Industrial Robotics

Credit Hours: 3.00. This course introduces the fundamentals of robotics with emphasis on solutions to the basic problems in kinematics, dynamics, and control of robot manipulators of serial type. It covers modeling of rigid body motion, kinematics of articulated multi-body systems, robot dynamics and simulation, sensing and actuation, robot controls, task planning, and robot operations. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

- Mechatronics/Controls Selective - Credit Hours: 3.00

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

15 Credits

Spring 4th Year

ECET 46000 - Project Design And Development

Credit Hours: 3.00. An extensive individual or small group design project is carried out with guidance from a faculty advisor. This course includes determining customer requirements, considering design alternatives, prototyping, project integration, and testing. The project is completed as a robust prototype. The course concludes with a formal written report and a presentation of the project to faculty and invited industrial guests. Typically offered Fall Spring Summer.

- Technical Elective - Credit Hours: 3.00
- Manufacturing/Controls Selective - Credit Hours: 3.00
- Humanities/Social Science Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

13 Credits

Note

*Fulfills University core.

120 semester credits and a 2.0 Graduation GPA are required for the Bachelor of Science degree.

1. Students must earn a "D-" or better in all courses.
2. Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF and all graded attempts.
3. 32 credit hours of 300-level or higher courses must be completed at Purdue University.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Mechanical Engineering Technology, BS

About the Program

The careers of mechanical engineering technology graduates take them to a variety of employers (e.g. Rockwell Automation, Fender Guitars, Lockheed Martin, Caterpillar) yet they have many skills in common: problem-solving, leadership and teamwork. The program focuses on the methods, materials, machinery and manpower necessary to effectively operate in a manufacturing environment. You'll learn how to manage people, machines, and production resources to ensure maximum efficiency and safety.

Mechanical Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Mechanical Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PIMET-BS
METC

120-cr for graduation
"D-" or better required in all major courses

Departmental/Program Major Courses (120 credits)

Required Major Courses (59 credits)

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MET 21100 - Applied Strength Of Materials

Credit Hours: 4.00. The principles of strength, stiffness, and stability are introduced and applied primarily to mechanical components. Typically offered Fall Spring Summer.

MET 21300 - Dynamics

Credit Hours: 3.00. Kinematics and kinetics principles of rigid-body dynamics are introduced. Emphasis is on the analysis of bodies in plane motion. Typically offered Fall Spring Summer.

MET 22000 - Heat And Power

Credit Hours: 3.00. Heat/Power is an introduction to the principles of thermodynamics and heat transfer. Basic thermodynamic processes are used to evaluate the performance of energy-based systems such as internal combustion engines, power plants, and refrigeration equipment. Typically offered Fall Spring.

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

MET 31300 - Applied Fluid Mechanics

Credit Hours: 3.00. The fundamental principles of fluid mechanics are developed, including properties of fluid, pressure, hydrostatics, dynamics of fluid flow, friction losses, and sizing of pipes. Emphasis is on problem solving. Typically offered Fall Spring Summer.

MET 32000 - Applied Thermodynamics

Credit Hours: 3.00. Following a review of fundamental concepts, advanced power and refrigeration cycles are analyzed.

Applications such as gas mixtures, air-vapor mixtures, and chemical reactions of combustion processes are presented. Typically offered Fall Spring Summer.

MET 34600 - Advanced Materials In Manufacturing

Credit Hours: 3.00. Metals, polymers, ceramic, and composite materials are studied. Crystal structure, molecular behavior, and the effects of various processes on material properties are considered. Course emphasizes the development and control of material properties to meet engineering requirements and specifications. Typically offered Summer Fall Spring.

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

MET Selectives - (15 credits)

- MET Elective or approved Focus Area elective - Credit Hours: 3.00
- Mechanics Selective - Credit Hours: 3.00
- MET Capstone Selective I - Credit Hours: 3.00
- MET Capstone Selective II - Credit Hours: 3.00
- Technical Selective or approved Focus Area Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (61 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation, maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

PHYS 22000 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, for students not specializing in physics. Typically offered Fall Spring Summer. CTL:IPS 1751 Algebra-based Physics I

PHYS 22100 - General Physics

Credit Hours: 4.00. Electricity, light, and modern physics, for students not specializing in physics. Typically offered Fall Spring Summer. CTL:IPS 1752 Algebra-based Physics II

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- General Education Human Cultures: Humanities Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education Human Cultures: Behavior/Social Sciences (satisfies Human Cultures: Behavioral Sciences for core) - Credit Hours: 3.00
- Global/Professional Selective - Credit Hours: 3.00
- TECH/MGMT Selective - Credit Hours: 3.00
- Beyond the Classroom Requirement - Credit Hours: 0.00

Freshman Composition Selective - Choose from (3 credits)

(satisfies Written Communication for core)

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

Economics/Finance Selective - choose from (3 credits)

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices.

Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

CSR 34200 - Personal Finance

Credit Hours: 3.00. The class covers a comprehensive discussion of investments, consumer credit, insurance and retirement issues. The goal is to show how these components are interconnected in order to create a complete picture of financial health of an individual. Typically offered Spring Summer Fall. CTL:IPO 1811 Personal Finance

ENTR 20000 - Introduction To Entrepreneurship And Innovation

Credit Hours: 3.00. A survey course designed to introduce students to the concept of entrepreneurship and the commercialization of new technology, its importance in the world economy, and related career options. Students completing this course will understand entrepreneurial roles and possibilities, begin developing required skills required of successful entrepreneurs, including leadership and basic business skills, and will develop a sense of their own aptitude for entrepreneurial endeavors, thereby allowing an informed decision regarding the pursuit of the full 15 credit Certificate in Entrepreneurship and Technology Innovation. Typically offered Fall Spring.

ENTR 31000 - Marketing And Management For New Ventures

Credit Hours: 3.00. Second in a two course sequence designed to develop a foundation of basic skills in the areas of entrepreneurship and innovation. Students completing this course will gain greater depth in areas essential to the creation and management of new ventures, including marketing and selling, finance and accounting, project management leadership, team building and ethics. Typically offered Fall Spring.

CGT Selective - choose from (2 credits)

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

CGT 16300 - Graphical Communication And Spatial Analysis

Credit Hours: 2.00. An introductory course in computer graphics applications for mechanical- and aeronautical-related professions. Experiences focus on visualization, sketching, graphic standards, and problem-solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent. Typically offered Fall Spring.

IT 10500 - Industrial Technology Introduction To Design

Credit Hours: 3.00. This course develops students' problem solving skills, with emphasis placed upon the concept of developing a three-dimensional model of an object. Students focus on the application of visualization processes and tools currently used in the design and manufacturing environments. Typically offered Fall Spring.

Programming Selective - choose from (3 credits)

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CNIT 17500 - Visual Programming

Credit Hours: 3.00. This course introduces event-driven application development and programming using a visual programming environment. Topics include problem solving and program design, control structures, objects and events, user interface construction, documentation, and program testing. Credit may be established in only one of: CPT 15500 or CPT 17500 or CPT 25000. PC literacy required. Typically offered Fall Spring Summer.

CS 15800 - C Programming

Credit Hours: 3.00. Introduction to structured programming in C. Data types and expression evaluation. Programmer-defined functions including passing parameters by value and by address. Selection topics include if/else/else-if, conditional expressions, and switch. Repetition topics include while, do-while, for, and recursion. External file input and output. Arrays, analysis of searching and sorting algorithms, and strings. Pointers and dynamic memory allocation. Students are expected to complete assignments in a collaborative environment. CS 15800 may be used to satisfy College of Science requirement of participation in at least one team-building and collaboration experience. Typically offered Summer Fall Spring.

CS 15900 - Programming Applications For Engineers

Credit Hours: 3.00. Fundamental principles, concepts, and methods of programming (C and MATLAB), with emphasis on applications in the physical sciences and engineering. Basic problem solving and programming techniques; fundamental algorithms and data structures; and use of programming logic in solving engineering problems. Students are expected to complete assignments in a collaborative learning environment. Typically offered Summer Fall Spring.

MET 16400 - Computing In Engineering Technology

Credit Hours: 3.00. Fundamental programming concepts are introduced using an interpreted high level programming language. Programming topics such as variable types, arrays, input/output tasks, and conditional and repetition executions will be applied to address technical problems seen in the first two years of engineering technology curricula. Typically offered Fall Spring Summer.

University Core Requirements

- Human Cultures: Behavioral/Social Sciences
- Human Cultures: Humanities
- Information Literacy
- Oral Communication
- Quantitative Reasoning
- Science #1
- Science #2
- Science, Technology & Society
- Written Communication

Program Requirements

Accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fall 1st Year

MA 16010 - Applied Calculus I

Credit Hours: 3.00. Topics include trigonometric and exponential functions; limits and differentiation, rules of differentiation,

maxima, minima and optimization; curve sketching, integration, anti-derivatives, fundamental theorem of calculus. Properties of definite integrals and numerical methods. Applications to life, managerial and social sciences. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

ENGT 18000 - Engineering Technology Foundations

Credit Hours: 3.00. This course introduces School of Engineering Technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. The skills needed to define and solve technical problems in engineering technology are developed. Instruction is given in analytical and computational problem-solving techniques. Application of software for analysis and communication is emphasized. Teamwork, global and societal concerns, and professional ethics are integrated into course projects. Typically offered Fall Spring Summer.

ENGT 18100 - Engineering Technology Applications

Credit Hours: 1.00. Basic electrical, electronics, mechanical, and process laboratory skills are introduced, including simple troubleshooting techniques and safety practice. Relevant engineering technology projects are emphasized. Typically offered Fall Spring Summer.

16 Credits

Spring 1st Year

MA 16020 - Applied Calculus II

Credit Hours: 3.00. This course covers techniques of integration; infinite series, convergence tests; differentiation and integration of functions of several variables; maxima and minima, optimization; differential equations and initial value problems; matrices, determinants, eigenvalues and eigenvectors. Applications. Typically offered Fall Spring Summer.

MET 11100 - Applied Statics

Credit Hours: 3.00. Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

- Freshman Composition Selective - Credit Hours: 3.00
- Computer Graphics Technology Selective - Credit Hours: 2.00

14 Credits

Fall 2nd Year

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

MET 21100 - Applied Strength Of Materials

Credit Hours: 4.00. The principles of strength, stiffness, and stability are introduced and applied primarily to mechanical components. Typically offered Fall Spring Summer.

PHYS 22000 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, for students not specializing in physics. Typically offered Fall Spring Summer. CTL:IPS 1751 Algebra-based Physics I

- Programming Selective - Credit Hours: 3.00

14 Credits

Spring 2nd Year

MET 10200 - Production Design And Specifications

Credit Hours: 3.00. The design, evaluation, and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations, and related industrial practices. Typically offered Fall Spring Summer.

MET 21300 - Dynamics

Credit Hours: 3.00. Kinematics and kinetics principles of rigid-body dynamics are introduced. Emphasis is on the analysis of bodies in plane motion. Typically offered Fall Spring Summer.

MET 28400 - Introduction To Industrial Controls

Credit Hours: 3.00. This course examines the concepts, devices, and common practices associated with modern industrial control systems. Common industrial control devices are studied. Students learn how to wire, program, and troubleshoot programmable logic controller (PLC) based control systems. PLC applications focus on interfacing and controlling a variety of electromechanical devices such as motors and pneumatic actuators. Industrial safety practices and procedures are emphasized throughout the course. Typically offered Fall Spring Summer.

- Humanities Selective - Credit Hours: 3.00

PHYS 22100 - General Physics

Credit Hours: 4.00. Electricity, light, and modern physics, for students not specializing in physics. Typically offered Fall Spring Summer. CTL:IPS 1752 Algebra-based Physics II

16 Credits

Fall 3rd Year

CHM 11100 - General Chemistry

Credit Hours: 3.00. Not available for credit toward graduation in the School of Science. Required of all freshmen in the School of Agriculture who are not in CHM 11500 and required of students in the School of Consumer and Family Sciences in retailing, textile, RHIT, and dietetics options who are not in CHM 11500. Required of students in physical therapy who are not in CHM 11500. Not available for credit toward graduation in the School of Science. Metric and S.I. Units; dimensional analysis; density; the atomic concept; elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure, spectra; the periodic table; chemical bonding, gases; descriptive chemistry of the common elements. Prerequisite: two years of high school algebra. Typically offered Fall Spring.

MET 22000 - Heat And Power

Credit Hours: 3.00. Heat/Power is an introduction to the principles of thermodynamics and heat transfer. Basic thermodynamic processes are used to evaluate the performance of energy-based systems such as internal combustion engines, power plants, and refrigeration equipment. Typically offered Fall Spring.

MET 23000 - Fluid Power

Credit Hours: 3.00. This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls. Typically offered Fall Spring Summer.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT

30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

15 Credits

Spring 3rd Year

- Economics/Finance Selective - Credit Hours: 3.00

MET 32000 - Applied Thermodynamics

Credit Hours: 3.00. Following a review of fundamental concepts, advanced power and refrigeration cycles are analyzed. Applications such as gas mixtures, air-vapor mixtures, and chemical reactions of combustion processes are presented. Typically offered Fall Spring Summer.

MET 34600 - Advanced Materials In Manufacturing

Credit Hours: 3.00. Metals, polymers, ceramic, and composite materials are studied. Crystal structure, molecular behavior, and the effects of various processes on material properties are considered. Course emphasizes the development and control of material properties to meet engineering requirements and specifications. Typically offered Summer Fall Spring.

- Global/Professional Selective - Credit Hours: 3.00
- Mechanics Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

IET 45100 - Monetary Analysis For Industrial Decisions

Credit Hours: 3.00. An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives. Not open to students who have had IET 25000. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback,

breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

- MET Capstone Selective I - Credit Hours: 3.00

MET 31300 - Applied Fluid Mechanics

Credit Hours: 3.00. The fundamental principles of fluid mechanics are developed, including properties of fluid, pressure, hydrostatics, dynamics of fluid flow, friction losses, and sizing of pipes. Emphasis is on problem solving. Typically offered Fall Spring Summer.

- TECH/MGMT Selective - Credit Hours: 3.00

ENGL 42100 - Technical Writing

Credit Hours: 3.00. Workplace writing in networked environments for technical contexts. Emphasizes context and user analysis, data analysis/display, project planning, document management, usability, ethics, research, team writing. Typical genres include technical reports, memos, documentation, Web sites. Typically offered Fall Spring Summer.

15 Credits

Spring 4th Year

- MET Capstone Selective II - Credit Hours: 3.00
- MET Elective or approved Focus Area elective - Credit Hours: 3.00
- Technical Selective or approved Focus Area elective - Credit Hours: 3.00
- Behavioral Social Science Selective - Credit Hours: 3.00

COM 32000 - Small Group Communication

Credit Hours: 3.00. A study of group thinking and problem-solving methods; participation in, and evaluation of, committee, and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators. Typically offered Fall Spring Summer.

15 Credits

Note

1. 120 semester credits and a 2.0 Graduation GPA are required for the Bachelor of Science degree.
2. Students must earn a "D-" or better in all courses unless otherwise noted.

3. Courses at Purdue University may only be attempted a maximum of three (3) times, including W, WF, I, IF and all graded attempts.
4. 32 credit hours of 300-level or higher courses must be completed at Purdue University.
5. Complete a Beyond the Classroom Requirement.

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Electrical Engineering Technology Minor

Minor Code: EETC

Credit Hours: 15

Availability: The EET minor can be attached to any Purdue University major that will accommodate or allow it. It is not available for students earning degrees in Electrical Engineering Technology and Audio Engineering Technology.

General Requirements for the EET Minor:

- EET minors must earn an overall GPA of 2.0 or better in courses on the minor.
- No course may be taken pass/fail.
- Transfer credit, course substitutions and credit by exam limited to three (3) credit hours.
- At least 12 credit hours of lab-based ECET courses must be taken at Purdue University.
- Course requisites must be met.

Required courses for the EET Minor

ECET 17700 - Data Acquisition And Systems Control

Credit Hours: 3.00. Fundamental electrical parameters and measurement techniques are introduced. These are then applied to implementing power interfaces, actuators and sensors. Modules that provide signal conditioning, data conversion, filtering and controllers are evaluated. A full, closed loop control system is built and evaluated. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

or

ECE 20100 - Linear Circuit Analysis I

Credit Hours: 3.00. Volt-ampere characteristics for circuit elements; independent and dependent sources; Kirchoff's laws and circuit equations. Source transformations; Thevenin's and Norton's theorems; superposition, step response of 1st order (RC, RL) and 2nd order (RLC) circuits. Phasor analysis, impedance calculations, and computation of sinusoidal steady state responses. Instantaneous and average power, complex power, power factor correction, and maximum power transfer. Instantaneous and average power. Typically offered Fall Spring Summer.

ECET 20700 - AC Electronics Circuit Analysis

Credit Hours: 4.00. AC circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the fundamental concepts of Fourier analysis are applied and used in the study of topics such as passive filters, IC filters, amplifiers, resonant circuits, single-phase and three-phase circuits. Computer aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 17900 - Introduction To Digital Systems

Credit Hours: 3.00. This course introduces computing systems and defines the major classes of computing devices. Sequential and concurrent operations, along with logic and control structures, are covered. Knowledge of fundamental computing principles is discovered. Common software tools are used to create, test, and debug systems. Systems are constructed from standard blocks with a focus on subsystem operation and performance, troubleshooting/debugging and testing. Common applications of embedded systems are introduced. Typically offered Fall Spring Summer.

ECET 22700 - DC And Pulse Electronics

Credit Hours: 3.00. Capacitors, inductors, oscillators, rectifiers, bipolar and MOSFET power switches, switching power supplies,

half-and full-H bridges, switching audio power amplifiers, and linear regulators are studied. Computer-aided analysis of circuits is utilized. Typically offered Fall Spring Summer.

ECET 27700 - AC And Power Electronics

Credit Hours: 3.00. AC Circuits including the j operator, phasors, reactance and impedance are studied. Circuit laws, network theorems, and the application of circuit analysis techniques to amplifiers used in power electronics, including power MOS devices, thyristors, and other appropriate applications. Computer-aided analysis of circuits is used. Typically offered Fall Spring Summer.

ECET 27900 - Embedded Digital Systems

Credit Hours: 3.00. A course emphasizing the advanced applications of embedded digital systems. Topics include embedded system architecture, use of advanced programmable counter/timer arrays, analog interfaces, serial communication, and interrupts. Typically offered Fall Spring Summer.

One additional lab-based ECET course at the 200-level or higher

- Approved substitution for additional ECET course: MET 28400
- ECET 22400 cannot be applied to this requirement.

Additional Requirements

A C programming course is a pre-requisite to ECET 17900. C programming courses at Purdue include:

CNIT 10500 - Introduction To C Programming

Credit Hours: 3.00. This course is an introduction to computer programming using the "C" language. The emphasis is on structured programming principles, and understanding the basic concepts that apply to engineering problems. Among topics covered in this course are: problem solving using top down design, using flowcharts to explain the program logic, selection structure, repetition structure, bitwise operations, arrays, pointers, strings, passing arguments, and sequential files. Typically offered Summer Fall Spring.

CNIT 15501 - Introduction To Software Development Concepts

Credit Hours: 3.00. This course introduces fundamental software development concepts common to most programming languages. Topics include problem solving and algorithm development, debugging, programming standards, variables, data types, operators, decisions, repetitive structures, modularity, arrays, user interface construction, software testing and debugging. A broad range of examples will be used throughout the course to show how each programming concept applies to real life problems. Typically offered Fall Spring Summer.

CS 15800 - C Programming

Credit Hours: 3.00. Introduction to structured programming in C. Data types and expression evaluation. Programmer-defined functions including passing parameters by value and by address. Selection topics include if/else/else-if, conditional expressions, and switch. Repetition topics include while, do-while, for, and recursion. External file input and output. Arrays, analysis of searching and sorting algorithms, and strings. Pointers and dynamic memory allocation. Students are expected to complete assignments in a collaborative environment. CS 15800 may be used to satisfy College of Science requirement of participation in at least one team-building and collaboration experience. Typically offered Summer Fall Spring.

CS 15900 - Programming Applications For Engineers

Credit Hours: 3.00. Fundamental principles, concepts, and methods of programming (C and MATLAB), with emphasis on applications in the physical sciences and engineering. Basic problem solving and programming techniques; fundamental algorithms and data structures; and use of programming logic in solving engineering problems. Students are expected to complete assignments in a collaborative learning environment. Typically offered Summer Fall Spring.

CS 24000 - Programming In C

Credit Hours: 3.00. The UNIX environment, C development cycle, data representation, operators, program structure, recursion, macros, C preprocessor, pointers and addresses, dynamic memory allocation, structures, unions, typedef, bit-fields, pointer/structure applications, UNIX file abstraction, file access, low-level I/O, concurrency. Typically offered Fall Spring.

Department of Technology Leadership and Innovation

Overview

The Department of Technology Leadership & Innovation prepares students to lead the development and successful introduction of high-tech solutions in business, industry, and the classroom. Faculty members are experts in helping organizations improve, and their research reflects the latest in helpful solutions. From teaching tomorrow's teachers to understanding the nuances in each technological challenge, the department focuses on improving and shaping the future of technology and its uses.

Faculty

<https://polytechnic.purdue.edu/departments/technology-leadership-innovation/directory>

Contact Information

Technology Leadership & Innovation Department

Young Hall

155 S. Grant St.

West Lafayette, IN 47907

Phone: 765.494.5599

Email: tliinfo@purdue.edu

Graduate Information

For Graduate Information please see Technology Leadership and Innovation Graduate Program Information.

Engineering/Technology Teacher Education, BS

About the Program

Every day, people with specialized knowledge share that knowledge with others, as teachers, trainers, consultants and more. With a national push to increase interest in science, technology, engineering, and math (STEM), you can help spread your knowledge too. By reaching students in middle school and high school, you will become an important part of the STEM education pipeline, providing inspiration to future STEM professionals as they are developing.

Engineering/Technology Teacher Education Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Engineering/Technology Teacher Education include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PITLI-ETTE-BS/Major: TCED 201710
120 Credits for graduation

Major Required Courses (45 credits)

2.5 ETTE Core GPA required for Bachelor of Science degree, courses listed below.

TLI 16100 - Prototyping In Engineering/Technology Education

Credit Hours: 3.00. This course provides basic instruction on the proper and safe use of tools and equipment used to fabricate prototyping equipment and tools. Typically offered Fall Spring Summer.

IT 11100 - Prototyping In Engineering/Technology Education

Credit Hours: 1.00. This course provides basic instruction on the proper and safe use of tools and equipment used to fabricate prototypes. Students demonstrate technical competency related to fabrication of prototypes. Typically offered Fall Spring Summer.

TLI 26200 - Foundations Of Integrated STEM Education

Credit Hours: 3.00. This course provides students with a conceptual understanding of an integrated approach to teaching Science, Technology, Engineering, and Mathematics (STEM). Integrated STEM pedagogies include project/problem-based (PBL), design-based, and inquiry-based approaches to teaching. Students engage in a co-teaching model to deliver STEM instruction and observe local K-12 classrooms. Typically offered Fall Spring Summer.

IT 27200 - Gateway To Engineering/Technology Teacher Education

Credit Hours: 3.00. An introductory course into the components of teaching engineering/technology (E/T) education in today's public schools. Students explore the K-12 E/T education curriculum, national standards, and professional associations. Development of educational objectives and effective lesson planning is discussed. Typically offered Fall Spring.

TLI 26500 - Teaching The TE Of STEM

Credit Hours: 3.00. A course for teacher education majors that provides rationale and techniques for integrating engineering and technological literacy into the K-12 mathematics and science curriculum. Experiences focus on the engineering design process, mechanisms, robotics, strength of materials, electrical circuits, and electronics. Typically offered Fall Spring Summer.

IT 27500 - Teaching The T & E Of STEM

Credit Hours: 3.00. A course for teacher education majors that provides rationale and techniques for integrating engineering and technological literacy into the K-12 mathematics and science curriculum. Experiences focus on the engineering design process as it relates to mechanisms, robotics, materials, electrical circuits and electronics. Typically offered Fall Spring.

TLI 36100 - Engineering And Technology Education Instructional Planning And Evaluation

Credit Hours: 3.00. This course addresses selecting content, writing instructional objectives, planning lessons, preparing a unit of study, and evaluating student progress. Emphasis is placed on evaluating instruction and student achievement to include developing valid, reliable testing instruments as they relate to measuring student achievement in the cognitive, affective, and psychomotor domains. Typically offered Fall Spring Summer.

IT 37100 - Instructional Planning And Evaluation

Credit Hours: 3.00. Students gain experience in determining content and writing instructional objectives. Emphasis is placed on developing good testing instruments and evaluating those instruments as they relate to measuring student achievement in the cognitive, affective, and psychomotor domains. Field trips may be required. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

IT 37700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 46000 - Teaching Design And Innovation II

Credit Hours: 3.00. This course expands the engineering design process, incorporating rapid prototyping and other fabrication technologies to create a specified solution. The course emphasizes process flow chart planning and logistics of engineering/technology education laboratory management. Prototypes will be tested in real situations and data gathered on performance. Designs will be revised to reflect a deeper understanding of manufacturing and use, being sensitive to structure, function, and behavior from a systems-level perspective. Intellectual property, marketing, and infrastructure will be discussed. Typically offered Fall Spring Summer.

IT 47000 - Teaching Design And Innovation II

Credit Hours: 3.00. This course builds on the student competencies developed in prerequisite courses. Students will apply rapid prototyping and other fabrication technologies to create a specified solution. Students will consider operations process flow chart planning and logistics of engineering/technology education laboratory management. Prototypes will be tested in real situations and data gathered on performance. Designs will be revised to reflect a deeper understanding of manufacturing and use, being sensitive to structure, function, and behavior from a systems-level perspective. Intellectual property, marketing, and infrastructure will be discussed. Typically offered Fall Spring Summer.

TLI 46100 - Engineering/Technology Teacher Lab Planning

Credit Hours: 3.00. This course provides future engineering/technology education teachers with information on designing, organizing, and managing engineering/technology education facilities. An in-depth study of specific laboratory requirements related to safety is covered. Management skills related to students, equipment, and supplies are addressed. Students design an engineering/technology education laboratory. Typically offered Fall Spring Summer.

IT 47100 - Managing The Technology Education Laboratory

Credit Hours: 3.00. This course provides future technology education teachers with information on designing, organizing, and managing technology education facilities. An in-depth study of specific laboratory requirements related to safety is covered.

Management skills related to students, equipment, and supplies are addressed. Students design a technology education laboratory. Typically offered Fall Spring Summer.

TLI 46200 - Methods Of Teaching Engineering/Technology Education

Credit Hours: 3.00. Students identify a variety of instructional techniques appropriate for teaching engineering/technology education. Students will present lessons and develop evaluation instruments to determine student achievement. Methodological insights and understanding for teaching technical subject matter is stressed. Typically offered Fall Spring Summer.

IT 47200 - Methods Of Teaching Technology Education

Credit Hours: 3.00. Students identify and demonstrate a variety of instructional techniques appropriate for teaching secondary technology education. Students plan lessons and assess their effectiveness on student achievement. Methodological insights and understanding for teaching technical subject matter is stressed. Field trips may be required. Typically offered Fall.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors, IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

Technical Electives (12 credits)

- Technical Electives⁶ (See Supplemental Information) - Credit Hours: 3.00

- Technical Electives⁶ (See Supplemental Information) - Credit Hours: 3.00
- Technical Electives⁶ (See Supplemental Information) - Credit Hours: 3.00
- Technical Electives⁶ (See Supplemental Information) - Credit Hours: 3.00

Professional Education Requirements (37 credits)

3.0 Prof Ed GPA required for Bachelor of Science degree, with each class at least a C- or higher, courses listed below plus the above TLI courses indicated with this symbol •

EDCI 27000 - Introduction To Educational Technology And Computing

Credit Hours: 3.00. Addresses fundamentals of educational technology, including the integration of instructional design, media, computers and related technologies within the classroom setting. Typically offered Fall Spring Summer.

EDPS 32700 - Assessment Literacy

Credit Hours: 1.00 to 3.00. Evaluating the impact of instruction on student performance is one of the most important skills for an educator. Effective teachers ask themselves, "How do I know if students are truly learning? Are they meeting educational objectives in the content area?" Using well-chosen assessment approaches, teachers can address these questions. In this course, students will acquire assessment literacy: the ability to gather accurate information about student achievement, and use that information to make instructional decisions that will improve learning. Course activities will focus on assessment tasks relevant to P- 12 classroom settings. Typically offered Fall Spring.

EDST 20010 - Educational Policies And Laws

Credit Hours: 1.00 to 3.00. The interactive course will provide an understanding of the history of schooling in the United States. A special emphasis will be placed on reviewing historical and contemporary educational policies and educational laws as each subject is critical to understanding social, historical, and cultural issues in the United States. Focus will also be on contemporary applications of historical ideas in the classroom and in school systems. Typically offered Fall Spring.

Foundational

EDCI 20500 - Exploring Teaching As A Career

Credit Hours: 3.00. Students will become familiar with the work of teachers and begin to develop their educational philosophies through examining what it means to teach and to learn and the nature and purpose of schools. Students will critically evaluate teaching as their chosen profession. This course includes a required weekly field-based experience in an elementary, middle, or high school classroom. Typically offered Fall Spring.

EDCI 28500 - Multiculturalism And Education

Credit Hours: 3.00. This course integrates an understanding of multiculturalism with principles of democratic education. Historical, sociological, cultural, political, philosophical, and pedagogical foundations of multiculturalism are explored and related to issues of pedagogy in a pluralistic society. This course is taken concurrently with EDCI 20500, which includes a school-based Theory into Practice field experience. Some discussion topics and assignments will be based on that field experience. It is highly recommended that EDCI 27000 be taken with or before taking this course. Typically offered Fall Spring Summer.

EDPS 23500 - Learning And Motivation

Credit Hours: 3.00. Introduction to concepts of learning and motivation in educational contexts (i.e., Educational Psychology). Influence of development, culture, and individual differences on learning and motivation. Uses of assessment and technology in promoting learning and motivation. A field-based experiential component is included. Typically offered Fall Spring Summer.

EDPS 26500 - The Inclusive Classroom

Credit Hours: 3.00. Characteristics of students with special needs/talents; strategies for helping students learn and develop in general educational settings. Emphasis placed upon research evidence, case studies, problem-based learning, and development of a plan for an inclusive classroom. A field-based component is included. Typically offered Spring Summer Fall.

Methods

EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems

Credit Hours: 3.00. For prospective teachers at junior and senior high schools. An overview of reading processes, fundamentals of reading instruction, factors that influence the ability to read text materials, strategies and materials for identifying and reducing reading problems, school resources, and programs for normal and deficient readers. Concurrent enrollment with program-specified methods course. Typically offered Fall Spring.

Capstone (16 credits)

EDCI 49800 - Supervised Teaching

Credit Hours: 8.00 to 16.00. Teaching full time in a school classroom under the supervision of the teacher in charge of the class and a University supervisor. Completion of education methods courses and other Gate requirements for the major area and admittance to teacher education required. Typically offered Fall Spring Summer.

Other Department Requirements (34 credits)

MA 15300 - Algebra And Trigonometry I

Credit Hours: 3.00. Exponents and radicals; algebraic and fractional expressions. Equations and inequalities, systems of linear equations. Polynomial, exponential, and logarithmic functions. Not open to students with credit in MA 15900. Not available for credit toward graduation in the School of Science. Typically offered Fall Spring Summer. CTL:IMA 1601 College Algebra

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

- Humanities Selective⁴ (satisfies Human Cultures Humanities for core) (See Supplemental Information)
- Lab Science Foundation Selective¹ (satisfies Science for core) (See Supplemental Information)
- Science Selective² (See Supplemental Information)

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Written Communication Foundation Selective³ (satisfies Written Communication for core) (See Supplemental Information) - Credit Hours: 3.00
- Advanced Communication Selective⁵ (See Supplemental Information) - Credit Hours: 3.00
- Advanced Communication Selective⁵ (See Supplemental Information) - Credit Hours: 3.00

Free Electives (4 credits)

(See Supplemental Information)

University Core Requirements

(<http://www.purdue.edu/provost/initiatives/curriculum/course.html>)

- Human Cultures Humanities

EDCI 28500 - Multiculturalism And Education

Credit Hours: 3.00. This course integrates an understanding of multiculturalism with principles of democratic education. Historical, sociological, cultural, political, philosophical, and pedagogical foundations of multiculturalism are explored and related to issues of pedagogy in a pluralistic society. This course is taken concurrently with EDCI 20500, which includes a school-based Theory into Practice field experience. Some discussion topics and assignments will be based on that field experience. It is highly recommended that EDCI 27000 be taken with or before taking this course. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science #1 - PHYS 21800 - General Physics
- Science #2
- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative

and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15300 - Algebra And Trigonometry I

Credit Hours: 3.00. Exponents and radicals; algebraic and fractional expressions. Equations and inequalities, systems of linear equations. Polynomial, exponential, and logarithmic functions. Not open to students with credit in MA 15900. Not available for credit toward graduation in the School of Science. Typically offered Fall Spring Summer. CTL:IMA 1601 College Algebra

Program Requirements

Fall 1st Year

TLI 26200 - Foundations Of Integrated STEM Education

Credit Hours: 3.00. This course provides students with a conceptual understanding of an integrated approach to teaching Science, Technology, Engineering, and Mathematics (STEM). Integrated STEM pedagogies include project/problem-based (PBL), design-based, and inquiry-based approaches to teaching. Students engage in a co-teaching model to deliver STEM instruction and observe local K-12 classrooms. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

EDCI 27000 - Introduction To Educational Technology And Computing

Credit Hours: 3.00. Addresses fundamentals of educational technology, including the integration of instructional design, media, computers and related technologies within the classroom setting. Typically offered Fall Spring Summer.

MA 15300 - Algebra And Trigonometry I

Credit Hours: 3.00. Exponents and radicals; algebraic and fractional expressions. Equations and inequalities, systems of linear equations. Polynomial, exponential, and logarithmic functions. Not open to students with credit in MA 15900. Not available for credit toward graduation in the School of Science. Typically offered Fall Spring Summer. CTL:IMA 1601 College Algebra

- Written Communication Foundation Selective ³ - Credit Hours: 3.00/4.00 *

15/16 Credits

Spring 1st Year

TLI 16100 - Prototyping In Engineering/Technology Education

Credit Hours: 3.00. This course provides basic instruction on the proper and safe use of tools and equipment used to fabricate prototyping equipment and tools. Typically offered Fall Spring Summer.

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities ⁴ - Credit Hours: 3.00 *

15 Credits

Fall 2nd Year

EDCI 20500 - Exploring Teaching As A Career

Credit Hours: 3.00. Students will become familiar with the work of teachers and begin to develop their educational philosophies through examining what it means to teach and to learn and the nature and purpose of schools. Students will critically evaluate teaching as their chosen profession. This course includes a required weekly field-based experience in an elementary, middle, or high school classroom. Typically offered Fall Spring.

EDCI 28500 - Multiculturalism And Education

Credit Hours: 3.00. This course integrates an understanding of multiculturalism with principles of democratic education. Historical, sociological, cultural, political, philosophical, and pedagogical foundations of multiculturalism are explored and related to issues of pedagogy in a pluralistic society. This course is taken concurrently with EDCI 20500, which includes a school-based Theory into Practice field experience. Some discussion topics and assignments will be based on that field experience. It is highly recommended that EDCI 27000 be taken with or before taking this course. Typically offered Fall Spring Summer.

EDST 20010 - Educational Policies And Laws

Credit Hours: 1.00 to 3.00. The interactive course will provide an understanding of the history of schooling in the United States. A special emphasis will be placed on reviewing historical and contemporary educational policies and educational laws as each subject is critical to understanding social, historical, and cultural issues in the United States. Focus will also be on contemporary applications of historical ideas in the classroom and in school systems. Typically offered Fall Spring.

- Lab Science Foundation Selective ¹ - Credit Hours: 3.00 *
- Technical Elective ⁶ ♦ - Credit Hours: 3.00
- Free Elective⁷ - Credit Hours: 1.00

14 Credits

Spring 2nd Year

TLI 26500 - Teaching The TE Of STEM

Credit Hours: 3.00. A course for teacher education majors that provides rationale and techniques for integrating engineering and technological literacy into the K-12 mathematics and science curriculum. Experiences focus on the engineering design process, mechanisms, robotics, strength of materials, electrical circuits, and electronics. Typically offered Fall Spring Summer.

ECET 22400 - Electronic Systems

Credit Hours: 3.00. This course is a survey of key electrical and electronics systems, their basic performance and applications. DC fundamentals include sources, resistance, Ohm's and Kirchhoff's Laws with simple circuits. AC systems include transformers and reactive elements, power production and distribution, filtering, motors and relays. Computer systems are presented with a microprocessor and provide the ability to write and read both digital and analog data. Analog systems include diodes, transistors,

IC amplifiers, and analog-digital and digital to analog conversions. The semester closes by combining all of the topics presented in the control of motor speed. Typically offered Fall Spring Summer.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

EDPS 23500 - Learning And Motivation

Credit Hours: 3.00. Introduction to concepts of learning and motivation in educational contexts (i.e., Educational Psychology). Influence of development, culture, and individual differences on learning and motivation. Uses of assessment and technology in promoting learning and motivation. A field-based experiential component is included. Typically offered Fall Spring Summer.

EDPS 26500 - The Inclusive Classroom

Credit Hours: 3.00. Characteristics of students with special needs/talents; strategies for helping students learn and develop in general educational settings. Emphasis placed upon research evidence, case studies, problem-based learning, and development of a plan for an inclusive classroom. A field-based component is included. Typically offered Spring Summer Fall.

16 Credits

Fall 3rd Year

EDPS 32700 - Assessment Literacy

Credit Hours: 1.00 to 3.00. Evaluating the impact of instruction on student performance is one of the most important skills for an educator. Effective teachers ask themselves, "How do I know if students are truly learning? Are they meeting educational objectives in the content area?" Using well-chosen assessment approaches, teachers can address these questions. In this course, students will acquire assessment literacy: the ability to gather accurate information about student achievement, and use that information to make instructional decisions that will improve learning. Course activities will focus on assessment tasks relevant to P- 12 classroom settings. Typically offered Fall Spring.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020
Introduction To Psychology

- Technical Elective ⁶ - Credit Hours: 3.00 ♦
- Science Foundation Selective ² - Credit Hours: 3.00
- Free Elective ⁷ - Credit Hours: 3.00

14 Credits

Spring 3rd Year

TLI 36100 - Engineering And Technology Education Instructional Planning And Evaluation

Credit Hours: 3.00. This course addresses selecting content, writing instructional objectives, planning lessons, preparing a unit of study, and evaluating student progress. Emphasis is placed on evaluating instruction and student achievement to include developing valid, reliable testing instruments as they relate to measuring student achievement in the cognitive, affective, and psychomotor domains. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems

Credit Hours: 3.00. For prospective teachers at junior and senior high schools. An overview of reading processes, fundamentals of reading instruction, factors that influence the ability to read text materials, strategies and materials for identifying and reducing reading problems, school resources, and programs for normal and deficient readers. Concurrent enrollment with program-specified methods course. Typically offered Fall Spring.

- Advanced Communication Selective ⁵ - Credit Hours: 3.00
- Technical Elective ⁶ - Credit Hours: 3.00 ♦

15 Credits

Fall 4th Year

TLI 46000 - Teaching Design And Innovation II

Credit Hours: 3.00. This course expands the engineering design process, incorporating rapid prototyping and other fabrication technologies to create a specified solution. The course emphasizes process flow chart planning and logistics of engineering/technology education laboratory management. Prototypes will be tested in real situations and data gathered on performance. Designs will be revised to reflect a deeper understanding of manufacturing and use, being sensitive to structure, function, and behavior from a systems-level perspective. Intellectual property, marketing, and infrastructure will be discussed. Typically offered Fall Spring Summer.

TLI 46100 - Engineering/Technology Teacher Lab Planning

Credit Hours: 3.00. This course provides future engineering/technology education teachers with information on designing, organizing, and managing engineering/technology education facilities. An in-depth study of specific laboratory requirements related to safety is covered. Management skills related to students, equipment, and supplies are addressed. Students design an engineering/technology education laboratory. Typically offered Fall Spring Summer.

TLI 46200 - Methods Of Teaching Engineering/Technology Education

Credit Hours: 3.00. Students identify a variety of instructional techniques appropriate for teaching engineering/technology education. Students will present lessons and develop evaluation instruments to determine student achievement. Methodological insights and understanding for teaching technical subject matter is stressed. Typically offered Fall Spring Summer.

- Advanced Communication Selective ⁵ - Credit Hours: 3.00
- Technical Elective ⁶ - Credit Hours: 3.00 ♦

15 Credits

Spring 4th Year

EDCI 49800 - Supervised Teaching

Credit Hours: 8.00 to 16.00. Teaching full time in a school classroom under the supervision of the teacher in charge of the class and a University supervisor. Completion of education methods courses and other Gate requirements for the major area and admittance to teacher education required. Typically offered Fall Spring Summer.

16 Credits

Note

*Fulfills University Core

1. 120 credits listed above are required for the TCED Bachelor of Science degree.

2. ● 3.0 Professional Education GPA required for Bachelor of Science degree, with at least a C- or higher.
3. ◆ 2.5 Core GPA required for Bachelor of Science degree.
4. 2.5 Graduation GPA required for Bachelor of Science degree.
5. Students must fulfill all Teacher Education Requirements ⁸. (See Supplemental Information)
6. 32 credits of upper division courses (30000 level or higher) must be taken at Purdue University, West Lafayette.
7. ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, I AND IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ◆ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Industrial Engineering Technology, BS

About the Program

When you major in industrial engineering technology at Purdue University, you will gain skills to prepare you for a wide variety of career options: manufacturing plants, government agencies, hospitals, healthcare organizations, retail companies, and more. You will focus on both technical and human-centered approaches to technology management. You will learn how to manage and coordinate engineering operations and lead projects from design to implementation. Coursework is enhanced with an overview of business and economics.

Industrial Engineering Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Industrial Engineering Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PITLI-IET-BS/Major: TIET 201710

120 Credits for graduation

Major Required Courses (74 credits)

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

IT 10400 - Industrial Organization

Credit Hours: 3.00. A detailed survey of organizational structures, operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy, and human factors necessary for effective management. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

OLS 25200 - Human Relations In Organizations

Credit Hours: 3.00. A survey of the concepts that provide a foundation for the understanding of individual and group behavior in organizations. Special emphasis on typical interpersonal and leadership relationships. Typically offered Fall Spring Summer.

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TECH 32000 - Technology And The Organization

Credit Hours: 3.00. A course intended to provide students with experiences mirroring what they will encounter in the world of work. Students will participate in interdisciplinary teams to explore technology solutions. Course topics include public policy,

regulatory and ethical issues, teaming and leadership, and project management. Permission of department required. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

IT 23000 - Industrial Supply Chain Management

Credit Hours: 3.00. A study of industrial supply chains. Emphasis is on in-plant shipping and receiving functions; modes of distribution; functions of, and services provided by supply chains. Emphasis is placed on how manufacturers, distributors and end users can provide value in the supply chain. Typically offered Fall Spring Summer.

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

IT 34500 - Automatic Identification And Data Capture

Credit Hours: 3.00. The course provides a basic understanding of automatic identification and data capture technologies and concepts with regard to how their deployment affects business and industry. Laboratory applications of bar codes, radio frequency identification, card technologies, and biometrics will be emphasized. Typically offered Fall Spring Summer.

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to

commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

IT 43200 - Financial Transactions In Distribution

Credit Hours: 3.00. The course is designed to familiarize students with various methods of pricing strategies, marketing concepts, and the terms and procedures involved. Special emphasis will be on computer applications and case study problems that help and enhance marketing of products and services. Field trips may be required. Typically offered Fall Spring Summer.

TLI 23500 - Introduction To Lean And Sustainable Systems

Credit Hours: 3.00. This course provides the foundation for technology systems processes and practices. The content covers the discussion of current systems issues, basic systems technology processes, and the role of systems engineering professionals in a

global business environment. Topics include basic principles of systems thinking, the concepts of performance and cost measures, alternative design concepts, lean processes, and sustainable life-cycle management. Typically offered Fall Spring Summer.

IT 21400 - Introduction To Lean Manufacturing

Credit Hours: 3.00. Lean manufacturing is a systematic approach to eliminating non-value added activities throughout a production system. Five basic principles characterize a lean production system: value definition, value stream mapping, flow optimization, pull production, and continuous improvement. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

TLI 33520 - Human Factors For Technology Systems

Credit Hours: 3.00. This course provides the foundation for examining the intersection of people, technology, policy, and work across technology systems. Topics include the evaluation, analysis, and design recommendations for improving the safety and efficiency of human-technology interactions. Typically offered Fall Spring Summer.

IT 28100 - Industrial Safety

Credit Hours: 3.00. A course designed to develop understanding of, and insight into, the basic aspects of accident prevention and safety. Specific attention will be given to (1) the psychological aspects of accident prevention; (2) the principles of accident prevention; (3) the practical aspects of planning, implementing, and maintaining a safe environment; and (4) standards, current laws, and regulations. Field trips may be required. Typically offered Fall Spring Summer.

IT 35100 - Advanced Industrial Safety And Health Management

Credit Hours: 3.00. An introduction to OSHA and standards development for occupational health in general industry. Special emphasis is on fire protection and egress, flammable and combustible liquids, electrical, personal protective equipment, machine guarding, industrial hygiene/blood borne pathogens, ergonomics, and ISO 9000/14000 integration. Typically offered Summer Fall Spring.

TLI 33620 - Total Productive Maintenance

Credit Hours: 3.00. This course emphasizes the importance of effective maintenance planning and execution for efficient and economical operation of service or technology systems. A systems approach to maintenance planning is taken. Maintenance activities are discussed from reliability and productivity perspectives in the context of technology systems. Semester-long, team based research project is typically required. Typically offered Fall Spring Summer.

IT 38100 - Total Productive Maintenance

Credit Hours: 3.00. This course is a study of the role and scope of total productive maintenance (TPM) in manufacturing. The three types of maintenance activities: corrective, preventive, predictive, and their associated quantitative techniques are studied. Reliability and queuing theory are discussed. Team projects are required. Field trips may be required. Typically offered Fall Spring.

TLI 43530 - Operations Planning And Management

Credit Hours: 3.00. A study of enterprise operations and management, demand forecasting, capacity analysis, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. The course focuses on the tools necessary to solve problems, such as decision analysis, linear programming, transportation modeling, enterprise resource planning (ERP) systems, and forecasting models. Field trips may be required and industry-sponsored research projects are typically completed. Typically offered Fall Spring Summer.

IT 44200 - Production Planning

Credit Hours: 3.00. A study of industrial organization and management, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. Field trips may be required. Typically offered Fall Spring Summer.

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

IT 44600 - Six Sigma Quality

Credit Hours: 3.00. A study of the six sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality as they pertain to the six sigma methodology and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

TLI 45700 - Technology Policy And Law

Credit Hours: 3.00. This course provides a foundation of understanding the broad impact of technology policies and laws on organizational performance, innovation, corporate accountability, and sustainability. Topics include corporate social responsibility, employment and contract law, intellectual property, e-commerce, and environmental and global challenges. Typically offered Fall Spring Summer.

OLS 34600 - Critical Thinking And Ethics

Credit Hours: 3.00. A course in complex problem solving and creative thinking with an emphasis on the ethical impacts of these solutions. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

- TLI Selective⁷ (See Supplemental Information)

TLI 48390 - Industrial Engineering Technology Capstone I: Problem Identification And Analysis

Credit Hours: 3.00. This is the first semester of a two-semester capstone sequence, which focuses on an industry-based, team approach to problem solving. An array of qualitative and quantitative tools is used to identify and analyze an industrial or business process. Data collection, process maps, flow analysis, Pareto chart, computer simulation, and other optimization tools will be used to identify problem areas and possible solutions. Typically offered Fall Spring Summer.

TLI 48395 - Industrial Engineering Technology Capstone II: Facility Design

Credit Hours: 3.00. During the second semester of the capstone sequence, teams will use a systematic approach to plan and design workstations, office space, and operations for a production or service facility proposed in TLI 48390. This course will emphasize lean principles to increase efficiency and eliminate waste through continuous improvement and the role of the team in establishing the goals and completing the design project. Typically offered Fall Spring Summer.

- Globalization Experience¹⁰ (See Supplemental Information) - Credit Hours: 0.00
- Internship Experience¹¹ (See Supplemental Information) - Credit Hours: 0.00
- Technical Electives⁸ (See Supplemental Information) - Credit Hours: 8.00

Other Departmental Courses (37 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Humanities Selective¹ (satisfies Human Cultures Humanities for core) (See Supplemental Information) - Credit Hours: 3.00
- Science Selective² (satisfies Science for core) (See Supplemental Information) - Credit Hours: 3.00
- Written Communication Selective³ (satisfies Written Communication for core) (See Supplemental Information) - Credit Hours: 3.00

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

PHYS 22000 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, for students not specializing in physics. Typically offered Fall Spring Summer.
CTL:IPS 1751 Algebra-based Physics I

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

- Mathematics/Statistics Selective⁴ (See Supplemental Information) - Credit Hours: 3.00
- History of Science and Technology Selective⁵ (See Supplemental Information) - Credit Hours: 3.00
- Advanced Communication Selective⁶ (See Supplemental Information) - Credit Hours: 3.00

Electives (9 credits)

Electives⁹ (9 credits) (See Supplemental Information)

University Core Requirements

(<http://www.purdue.edu/provost/initiatives/curriculum/course.html>)

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science - PSY 12000/SOC 10000
- Information Literacy - TECH 12000
- Science #1 - PHYS 21800
- Science #2
- Science, Technology & Society Selective - TECH 12000
- Written Communication - ENGL 10600/ENGL 10800
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15800/MA 15300

Program Requirements

Fall 1st Year

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered

design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking Humanities Selective¹ - Credit Hours: 3.00 *

15 Credits

Spring 1st Year

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

- Mathematics/Statistics Selective⁴ - Credit Hours: 3.00
- Written Communication Selective³ - Credit Hours: 3.00 - 4.00 *

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

PHYS 21800 - General Physics

Credit Hours: 4.00. Mechanics, heat, and sound, primarily for technology students. Typically offered Summer Fall Spring.

16/17 Credits

Fall 2nd Year

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

TLI 23500 - Introduction To Lean And Sustainable Systems

Credit Hours: 3.00. This course provides the foundation for technology systems processes and practices. The content covers the discussion of current systems issues, basic systems technology processes, and the role of systems engineering professionals in a global business environment. Topics include basic principles of systems thinking, the concepts of performance and cost measures, alternative design concepts, lean processes, and sustainable life-cycle management. Typically offered Fall Spring Summer.

- Science Selective² - Credit Hours: 3.00 *

CGT 11000 - Technical Graphics Communications

Credit Hours: 3.00. This course is an introduction to the graphic language used to communicate design ideas using CAD. Topics include sketching, multiview drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

MET 24500 - Manufacturing Systems

Credit Hours: 3.00. This course surveys the manufacturing processes and tools commonly used to convert cast and molded, formed, and joined materials into finished products. It includes the fundamentals of material removal, measurement, statistical quality control, assembly processes, process planning and optimization, CNC programming and automated manufacturing. Typically offered Summer Fall Spring.

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

- History of Science & Tech Selective⁵ - Credit Hours: 3.00

15 Credits

Fall 3rd Year

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

TLI 33520 - Human Factors For Technology Systems

Credit Hours: 3.00. This course provides the foundation for examining the intersection of people, technology, policy, and work across technology systems. Topics include the evaluation, analysis, and design recommendations for improving the safety and efficiency of human-technology interactions. Typically offered Fall Spring Summer.

- TLI Selective⁷ - Credit Hours: 3.00

15 Credits

Spring 3rd Year

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 33620 - Total Productive Maintenance

Credit Hours: 3.00. This course emphasizes the importance of effective maintenance planning and execution for efficient and economical operation of service or technology systems. A systems approach to maintenance planning is taken. Maintenance activities are discussed from reliability and productivity perspectives in the context of technology systems. Semester-long, team based research project is typically required. Typically offered Fall Spring Summer.

TLI 43530 - Operations Planning And Management

Credit Hours: 3.00. A study of enterprise operations and management, demand forecasting, capacity analysis, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. The course focuses on the tools necessary to solve problems, such as decision analysis, linear programming, transportation modeling, enterprise resource planning (ERP) systems, and forecasting models. Field trips may be required and industry-sponsored research projects are typically completed. Typically offered Fall Spring Summer.

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

- Technical Elective⁹ - Credit Hours: 3.00

15 Credits

Fall 4th Year

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

TLI 45700 - Technology Policy And Law

Credit Hours: 3.00. This course provides a foundation of understanding the broad impact of technology policies and laws on organizational performance, innovation, corporate accountability, and sustainability. Topics include corporate social responsibility, employment and contract law, intellectual property, e-commerce, and environmental and global challenges. Typically offered Fall Spring Summer.

TLI 48390 - Industrial Engineering Technology Capstone I: Problem Identification And Analysis

Credit Hours: 3.00. This is the first semester of a two-semester capstone sequence, which focuses on an industry-based, team approach to problem solving. An array of qualitative and quantitative tools is used to identify and analyze an industrial or business process. Data collection, process maps, flow analysis, Pareto chart, computer simulation, and other optimization tools will be used to identify problem areas and possible solutions. Typically offered Fall Spring Summer.

- Advanced Communication Selective⁶ - Credit Hours: 3.00
- Elective⁹ - Credit Hours: 3.00
- Internship Experience¹¹ - Credit Hours: 0.00

15 Credits

Spring 4th Year

- Technical Elective⁸ - Credit Hours: 3.00
- Technical Elective⁸ - Credit Hours: 2.00
- Elective⁹ - Credit Hours: 3.00
- Elective⁹ - Credit Hours: 3.00
- Globalization Experience¹⁰ - Credit Hours: 0.00

TLI 48395 - Industrial Engineering Technology Capstone II: Facility Design

Credit Hours: 3.00. During the second semester of the capstone sequence, teams will use a systematic approach to plan and design workstations, office space, and operations for a production or service facility proposed in TLI 48390. This course will

emphasize lean principles to increase efficiency and eliminate waste through continuous improvement and the role of the team in establishing the goals and completing the design project. Typically offered Fall Spring Summer.

14 Credits

Notes

*Fulfills University Core

- 1) 120 credits listed above are required for the IET Bachelor of Science degree.
- 2) 2.0 Graduation GPA required for Bachelor of Science degree.
- 3) 32 credits of upper division courses (30000 level or higher) must be taken at Purdue University, West Lafayette.
- 4) ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, I AND IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Organizational Leadership, BS

About the Program

With a major in organizational leadership, you will focus on leadership and innovation to develop skills as a leader for national and global technology enterprises. The broad curricula will help you learn how to lead in a variety of scenarios, from innovative technology organizations to global teams and organizational change. You will also take courses to understand how policies and law affect technology innovation and influence global technology and organizational leadership.

Organizational Leadership Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Organizational Leadership include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PITLI-OLS-BS/Major: OLSV 201710

120 Credits for graduation

Major Required Courses (75 credits)

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

IT 10400 - Industrial Organization

Credit Hours: 3.00. A detailed survey of organizational structures, operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy, and human factors necessary for effective management. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

OLS 25200 - Human Relations In Organizations

Credit Hours: 3.00. A survey of the concepts that provide a foundation for the understanding of individual and group behavior in organizations. Special emphasis on typical interpersonal and leadership relationships. Typically offered Fall Spring Summer.

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will

provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TECH 32000 - Technology And The Organization

Credit Hours: 3.00. A course intended to provide students with experiences mirroring what they will encounter in the world of work. Students will participate in interdisciplinary teams to explore technology solutions. Course topics include public policy, regulatory and ethical issues, teaming and leadership, and project management. Permission of department required. Typically offered Fall Spring Summer.

OLS 45000 - Project Management For Organizational And Human Resource Development

Credit Hours: 3.00. An introduction to project management concepts and practices in the context of human resource development projects. Typically offered Summer Fall Spring.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

IT 23000 - Industrial Supply Chain Management

Credit Hours: 3.00. A study of industrial supply chains. Emphasis is on in-plant shipping and receiving functions; modes of distribution; functions of, and services provided by supply chains. Emphasis is placed on how manufacturers, distributors and end users can provide value in the supply chain. Typically offered Fall Spring Summer.

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to

commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

IT 43200 - Financial Transactions In Distribution

Credit Hours: 3.00. The course is designed to familiarize students with various methods of pricing strategies, marketing concepts, and the terms and procedures involved. Special emphasis will be on computer applications and case study problems that help and enhance marketing of products and services. Field trips may be required. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working

organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

TLI 25300 - Principles Of Technology Strategy

Credit Hours: 3.00. This course explores technological strategy and the innovation process from an organizational perspective. The evolutionary path of technologies is dependent upon a variety of factors that when understood can lead to sound technology leadership practices. These factors include innovative organizational processes, economic enablers, and public policies. Students will explore these factors and their interrelationships with attention to how they contribute to practices such as technological evaluation, assessment, planning, strategy, and forecasting. Typically offered Fall Spring Summer.

TLI 25400 - Leading Change In Technology Organizations

Credit Hours: 3.00. This course provides a framework for creating, monitoring, and leading change within technology-rich organizations. Students will learn how to be change consultants, diagnose organizational problems, identify and implement change interventions at various outcome levels (i.e. individual, group, process, and the organization as a whole), and evaluate the success of change efforts. Typically offered Fall Spring Summer.

OLS 38600 - Leadership For Organizational Change And Innovation

Credit Hours: 3.00. Introduction to and overview of fundamental concepts of leading organizational change and innovation. Typically offered Summer Fall Spring.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

IT 45000 - Production Cost Analysis

Credit Hours: 3.00. An introduction to financial statements and to the study of the costs of production in terms of break-even and least-cost alternatives, including present and future costs when related to the time value of money, budgeting, labor and overhead, production, cost control, and the role of the supervisor and the engineering technologist to cost control. Computer applications for determining rate of return for complex problems are introduced. Typically offered Summer Fall Spring.

TLI 35600 - Global Technology Leadership

Credit Hours: 3.00. This course examines leadership of high-tech organizations across cultures and national boundaries. Topics covered may include forging strategic alliances, negotiating contracts, meeting ISO requirements, managing a multinational workforce, identifying emerging markets, and driving innovation. Typically offered Fall Spring Summer.

OLS 45600 - Leadership In A Global Environment

Credit Hours: 3.00. Exploration of leadership strategies for organizations engaged in international business. Includes understanding of cultural differences and diverse business practices, and challenges of competing in a global marketplace. Typically offered Summer Fall Spring.

TECH 33000 - Technology And The Global Society

Credit Hours: 3.00. The course examines the interplay of technology, globalization, and ethics. Students will explore concepts and issues related to outsourcing; global competitiveness; communications; contemporary issues; cultural differences such as inequality, security, sustainability, and quality of life; and the ethical dilemmas that often emerge as a result of the impact of technology. Typically offered Fall Spring Summer.

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

IT 44600 - Six Sigma Quality

Credit Hours: 3.00. A study of the six sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality as they pertain to the six sigma methodology and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

TLI 45700 - Technology Policy And Law

Credit Hours: 3.00. This course provides a foundation of understanding the broad impact of technology policies and laws on organizational performance, innovation, corporate accountability, and sustainability. Topics include corporate social responsibility, employment and contract law, intellectual property, e-commerce, and environmental and global challenges. Typically offered Fall Spring Summer.

OLS 34600 - Critical Thinking And Ethics

Credit Hours: 3.00. A course in complex problem solving and creative thinking with an emphasis on the ethical impacts of these solutions. Typically offered Fall Spring Summer.

TLI 45800 - Leadership For Competitive Advantage

Credit Hours: 3.00. Organizations who consistently outperform competitors realize bottom-line impact through efficient leveraging of organizational strategy, leadership, internal and external talent acquisition, organizational culture, and marketing strategies. This course will explore the relationships between these areas and introduce organizational tools and concepts to enable the student to recognize and build capacity for sustainable competitive advantage in technology organizations. Typically offered Fall Spring Summer.

OLS 48400 - Leadership Strategies For Quality And Productivity

Credit Hours: 3.00. A study of how organizational leaders create an environment conducive to high levels of employee self-motivation, quality, and productivity (TQM). Actual case situations are used to illustrate the application of course content. Typically offered Fall Spring Summer.

TLI 48590 - Organizational Leadership Capstone I

Credit Hours: 3.00. This course provides the synthesis between technology and organizational leadership. Students will apply advanced leadership knowledge and skills to issues, problems, and challenges in technology-rich organizations while working in diverse teams. Topics include team leadership, integration of technologies to develop innovative solutions, problem-solving and decision-making, globalization, cross-cultural management, and project management. Permission of Department required. Typically offered Fall Spring Summer.

TLI 48595 - Organizational Leadership Capstone II

Credit Hours: 3.00. This course builds upon the pre-requisite capstone course in which students engage in theory-based applied learning as well as team project-based learning and learning in context. Students will work with organizations to address various organizational challenges in which they will integrate their organizational skills and demonstrate their leadership competencies. Typically offered Fall Spring Summer.

- TLI Selective⁸ (See Supplemental Information) - Credit Hours: 3.00
- Leadership Experiential Selective¹⁰ (See Supplemental Information) - Credit Hours: 3.00
- Globalization Experience¹² - Credit Hours: 0.00
- Technology Focus Selective⁹ (See Supplemental Information) - Credit Hours: 3.00
- Technology Focus Selective⁹ (See Supplemental Information) - Credit Hours: 3.00
- Technology Focus Selective⁹ (See Supplemental Information) - Credit Hours: 3.00
- Technology Focus Selective⁹ (See Supplemental Information) - Credit Hours: 3.00

Other Departmental Courses (36 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Humanities Selective ¹ (satisfies Human Cultures Humanities for core) (See Supplemental Information) - Credit Hours: 3.00
- Science Selective ³ (satisfies Science for core) (See Supplemental Information) - Credit Hours: 3.00
- Lab Science Selective ² (satisfies Science for core) (See Supplemental Information) - Credit Hours: 3.00
- Written Communication Selective ⁴ (satisfies Written Communication for core) (See Supplemental Information) - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

- Math/Statistics Selective⁵ (See Supplemental Information) - Credit Hours: 3.00
- History of Science and Technology Selective⁶ (See Supplemental Information) - Credit Hours: 3.00
- Advanced Communication Selective⁷ (See Supplemental Information) - Credit Hours: 3.00

Electives (9 credits)

Electives ¹¹ (9 credits) (See Supplemental Information)

University Core Requirements

(<http://www.purdue.edu/provost/initiatives/curriculum/course.html>)

- Human Cultures Humanities

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Science #1
- Science #2

- Science, Technology & Society Selective - TECH 12000 - Design Thinking In Technology

ENGL 10600 - First-Year Composition

Credit Hours: 4.00. Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400.

ENGL 10800 - Accelerated First-Year Composition

Credit Hours: 3.00. An accelerated composition course that substitutes for ENGL 10600 for students showing superior writing ability. Typically offered Summer Fall Spring.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

Program Requirements

Fall 1st Year

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

- Humanities Selective¹ - Credit Hours: 3.00*

15 Credits

Spring 1st Year

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

- Mathematics/Statistics Selective ⁵ - Credit Hours: 3.00
- Written Communication Selective ⁴ - Credit Hours: 3.00/4.00 *
- Lab Science Selective ² - Credit Hours: 3.00 *

15/16 Credits

Fall 2nd Year

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of

projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

TLI 25300 - Principles Of Technology Strategy

Credit Hours: 3.00. This course explores technological strategy and the innovation process from an organizational perspective. The evolutionary path of technologies is dependent upon a variety of factors that when understood can lead to sound technology leadership practices. These factors include innovative organizational processes, economic enablers, and public policies. Students will explore these factors and their interrelationships with attention to how they contribute to practices such as technological evaluation, assessment, planning, strategy, and forecasting. Typically offered Fall Spring Summer.

15 Credits

Spring 2nd Year

TLI 25400 - Leading Change In Technology Organizations

Credit Hours: 3.00. This course provides a framework for creating, monitoring, and leading change within technology-rich organizations. Students will learn how to be change consultants, diagnose organizational problems, identify and implement change interventions at various outcome levels (i.e. individual, group, process, and the organization as a whole), and evaluate the success of change efforts. Typically offered Fall Spring Summer.

- History of Science & Tech Selective ⁶ - Credit Hours: 3.00
- Science Selective ³ - Credit Hours: 3.00 *
- Technology Focus Selective ⁹ - Credit Hours: 3.00
- Elective¹¹ - Credit Hours: 3.00

15 Credits

Fall 3rd Year

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

- Technology Focus Selective ⁹ - Credit Hours: 3.00
- TLI Selective⁸ - Credit Hours: 3.00

15 Credits

Spring 3rd Year

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 33400 - Economic Analysis For Technology Systems

Credit Hours: 3.00. This course examines techniques of economic analysis for systems technologists, engineers, and leaders who

evaluate and determine the financial attractiveness of multiple alternatives. Emphasizes economic feasibility and applying time value of money concepts to cost-volume-profit decisions. Topics include present worth, rate of return, benefit-cost, payback, breakeven analysis, depreciation, economic optimization, and decision-making under uncertainty. Typically offered Fall Spring Summer.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

TLI 35600 - Global Technology Leadership

Credit Hours: 3.00. This course examines leadership of high-tech organizations across cultures and national boundaries. Topics covered may include forging strategic alliances, negotiating contracts, meeting ISO requirements, managing a multinational workforce, identifying emerging markets, and driving innovation. Typically offered Fall Spring Summer.

- Technology Focus Selective ⁹ - Credit Hours: 3.00
- Technology Focus Selective ⁹ - Credit Hours: 3.00

15 Credits

Fall 4th Year

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

TLI 45700 - Technology Policy And Law

Credit Hours: 3.00. This course provides a foundation of understanding the broad impact of technology policies and laws on organizational performance, innovation, corporate accountability, and sustainability. Topics include corporate social responsibility, employment and contract law, intellectual property, e-commerce, and environmental and global challenges. Typically offered Fall Spring Summer.

TLI 45800 - Leadership For Competitive Advantage

Credit Hours: 3.00. Organizations who consistently outperform competitors realize bottom-line impact through efficient leveraging of organizational strategy, leadership, internal and external talent acquisition, organizational culture, and marketing strategies. This course will explore the relationships between these areas and introduce organizational tools and concepts to enable the student to recognize and build capacity for sustainable competitive advantage in technology organizations. Typically offered Fall Spring Summer.

TLI 48590 - Organizational Leadership Capstone I

Credit Hours: 3.00. This course provides the synthesis between technology and organizational leadership. Students will apply advanced leadership knowledge and skills to issues, problems, and challenges in technology-rich organizations while working in diverse teams. Topics include team leadership, integration of technologies to develop innovative solutions, problem-solving and decision-making, globalization, cross-cultural management, and project management. Permission of Department required. Typically offered Fall Spring Summer.

- Leadership Experiential Selective ¹⁰ - Credit Hours: 3.00

15 Credits

Spring 4th Year

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

TLI 48495 - Supply Change Management Technology Capstone II: Strategic Analytics

Credit Hours: 3.00. This course is the second of two integrative capstone courses for senior-level students. Students will continue working in teams using a variety of planning and decision-making models to work with organizations to solve problems and make sound decisions. The major responsibility of students in the capstone courses is to make objective strategic decisions and to justify them through oral and written communication. Typically offered Fall Spring Summer.

- Advanced Communication Selective ⁷ - Credit Hours: 3.00
- Elective ¹¹ - Credit Hours: 3.00
- Elective ¹¹ - Credit Hours: 3.00
- Globalization Experience ¹² - Credit Hours: 0.00

15 Credits

Note

*Fulfills University Core

- 1) 120 credits listed above are required for the OLSV Bachelor of Science degree.
- 2) 2.0 Graduation GPA required for Bachelor of Science degree.
- 3) 32 credits of upper division courses (30000 level or higher) must be taken at Purdue University, West Lafayette.
- 4) ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, I AND IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Supply Chain Management Technology, BS

About the Program

Virtually all corporations are dependent upon their supply chains to manage the flow of goods, services and information to help customers. You will study the entire supply chain enterprise yet have the flexibility to select courses for your chosen career path. The top ERP (Enterprise Resource Planning) software in the industry, SAP ERP, is embedded throughout the curriculum. The latest technology and software is also used to help graduates become career-ready.

Supply Chain Management Technology Website

Degree Requirements and Supplemental Information

The full Program Requirements for 2016-17 Supply Chain Management Technology include all Supplemental Information and selective lists of those categories which a student must fulfill in order to earn their degree. These are intended to be printer-friendly, but include less descriptive course detail.

Please see below for program requirements and the necessary degree fulfillments.

PITLI-IET-BS/Major: TSCM 201710

120 Credits for graduation

Major Required Courses (75 credits)

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

IT 10400 - Industrial Organization

Credit Hours: 3.00. A detailed survey of organizational structures, operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy, and human factors necessary for effective management. Typically offered Fall Spring Summer.

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

OLS 25200 - Human Relations In Organizations

Credit Hours: 3.00. A survey of the concepts that provide a foundation for the understanding of individual and group behavior in organizations. Special emphasis on typical interpersonal and leadership relationships. Typically offered Fall Spring Summer.

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will

provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TECH 32000 - Technology And The Organization

Credit Hours: 3.00. A course intended to provide students with experiences mirroring what they will encounter in the world of work. Students will participate in interdisciplinary teams to explore technology solutions. Course topics include public policy, regulatory and ethical issues, teaming and leadership, and project management. Permission of department required. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

IT 23000 - Industrial Supply Chain Management

Credit Hours: 3.00. A study of industrial supply chains. Emphasis is on in-plant shipping and receiving functions; modes of distribution; functions of, and services provided by supply chains. Emphasis is placed on how manufacturers, distributors and end users can provide value in the supply chain. Typically offered Fall Spring Summer.

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

IT 34500 - Automatic Identification And Data Capture

Credit Hours: 3.00. The course provides a basic understanding of automatic identification and data capture technologies and concepts with regard to how their deployment affects business and industry. Laboratory applications of bar codes, radio frequency identification, card technologies, and biometrics will be emphasized. Typically offered Fall Spring Summer.

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial

processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

IT 43200 - Financial Transactions In Distribution

Credit Hours: 3.00. The course is designed to familiarize students with various methods of pricing strategies, marketing concepts,

and the terms and procedures involved. Special emphasis will be on computer applications and case study problems that help and enhance marketing of products and services. Field trips may be required. Typically offered Fall Spring Summer.

TLI 23500 - Introduction To Lean And Sustainable Systems

Credit Hours: 3.00. This course provides the foundation for technology systems processes and practices. The content covers the discussion of current systems issues, basic systems technology processes, and the role of systems engineering professionals in a global business environment. Topics include basic principles of systems thinking, the concepts of performance and cost measures, alternative design concepts, lean processes, and sustainable life-cycle management. Typically offered Fall Spring Summer.

IT 21400 - Introduction To Lean Manufacturing

Credit Hours: 3.00. Lean manufacturing is a systematic approach to eliminating non-value added activities throughout a production system. Five basic principles characterize a lean production system: value definition, value stream mapping, flow optimization, pull production, and continuous improvement. Typically offered Fall Spring Summer.

TLI 34200 - Warehouse And Inventory Management

Credit Hours: 3.00. A course designed to develop understanding of types of warehouses, methods of organizing the warehouse environment, and determining efficient inventory control procedures. Technology applications related to the management of warehouse and inventory stock keeping units (SKU) are investigated. Storage of inventory, placement of inventory, picking, packing, shipping, and other internal logistics management topics will be explored. Typically offered Fall Spring Summer.

IT 33200 - Purchasing, Inventory, And Warehouse Management

Credit Hours: 3.00. A course designed to develop understanding of types of warehouses, methods of organizing the warehouse environment, and determining efficient inventory control procedures. Purchasing of products, storage of inventory, placement of inventory and other internal logistics management topics will be explored. Real world projects conducted in lab environment will be utilized. Typically offered Fall Spring Summer.

TLI 34250 - Purchasing And Contract Management

Credit Hours: 3.00. This course examines the processes by which goods and services are acquired through purchasing and contract management. Topics include procurement, contract strategies, source selection, identifying contract type, product liability and risk, the bid process and response evaluation; contract risk assessment, contract negotiation, and contract law. Typically offered Fall Spring Summer.

TLI 34350 - Business To Business Sales Management

Credit Hours: 3.00. This course covers key topics in sales management while emphasizing customer relationship management, sales productivity, and the effects of technology on the sales function. Topics include analyzing multiple channel models; establishing sales plans; incentivizing and motivating the sales force; and evaluating, monitoring, and managing the effectiveness of the sales force. Typically offered Fall Spring Summer.

TLI 34300 - Technical And Service Selling

Credit Hours: 3.00. A study of sales models and techniques for technical and service sales in business to business environments, including development of channel relationships, long-term sales agreements, customer relationship management efforts, total cost of ownership tools and complex sales presentations. Covers critical sales skills such as e-economy sales and marketing, lead management, building credibility, consultative selling, ethical negotiations, and sustainable product management. Typically offered Fall Spring Summer.

IT 33000 - Industrial Sales And Sales Management

Credit Hours: 3.00. Sales and sales management techniques for analyzing distribution challenges and providing solutions through effective communication; establishing credibility, effective questioning techniques, developing and presenting solutions, anticipating objections and gaining a commitment, plus techniques for building, developing and compensating an effective sales organization. Typically offered Fall Spring.

TLI 43530 - Operations Planning And Management

Credit Hours: 3.00. A study of enterprise operations and management, demand forecasting, capacity analysis, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. The course focuses on the tools necessary to solve problems, such as decision analysis, linear programming, transportation modeling, enterprise resource planning (ERP) systems, and forecasting models. Field trips may be required and industry-sponsored research projects are typically completed. Typically offered Fall Spring Summer.

IT 44200 - Production Planning

Credit Hours: 3.00. A study of industrial organization and management, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. Field trips may be required. Typically offered Fall Spring Summer.

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

IT 44600 - Six Sigma Quality

Credit Hours: 3.00. A study of the six sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality as they pertain to the six sigma methodology and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

TLI 44275 - Global Transportation And Logistics Management

Credit Hours: 3.00. A study of the various aspects of logistics. The development, implementation, and control of physical transportation systems, product distribution, warehousing, and inventory policy models will be emphasized. A working knowledge of third and fourth party logistics and transportation strategies will be analyzed. The impact of logistics and transportation in the global environment will be discussed. Typically offered Fall Spring Summer.

IT 43400 - Global Transportation And Logistics Management

Credit Hours: 3.00. A study of the various aspects of logistics in industrial systems and product support. The development, implementation, and control of physical transportation systems, product distribution, warehousing, and inventory policy models will be emphasized. The impact of logistics and transportation in the global environment will be discussed. Case studies and software applications will be included. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of

the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

MGMT 20000 - Introductory Accounting

Credit Hours: 3.00. The objectives of the course are to help students: (1) understand what is in financial statements and what the statements say about a business, (2) identify the business activities that caused the amounts that appear in the statements, and (3) understand how, when, and at what amount the effects of manager and employee actions will appear in the statements. Typically offered Fall Spring Summer. CTL:IPO 1801 Accounting I

MGMT 32300 - Principles Of Marketing

Credit Hours: 3.00. This mixed lecture and case course provides an overview of the functional area of marketing. The course is taught from a managerial perspective; it focuses on inputs to the marketing decision-making process, the process itself, and its results. No credit for students in the School of Management, except economics majors. Typically offered Fall Spring.

TLI 48490 - Supply Chain Management Technology Capstone I: Strategic Planning

Credit Hours: 3.00. This course is the first of two integrative capstone courses for senior-level students. The focus is on how firms formulate, implement, and evaluate strategies. Teams of students will integrate program knowledge, coupled with strategic-management techniques learned, to make decisions and help chart the future of different organizations. The major responsibility of students in the capstone courses is to make objective strategic decisions and to justify them through oral and written communication. Typically offered Fall Spring Summer.

TLI 48495 - Supply Change Management Technology Capstone II: Strategic Analytics

Credit Hours: 3.00. This course is the second of two integrative capstone courses for senior-level students. Students will continue working in teams using a variety of planning and decision-making models to work with organizations to solve problems and make sound decisions. The major responsibility of students in the capstone courses is to make objective strategic decisions and to justify them through oral and written communication. Typically offered Fall Spring Summer.

- Globalization Experience¹⁰ (See Supplemental Information) - Credit Hours: 0.00
- Internship Experience¹¹ (See Supplemental Information) - Credit Hours: 0.00

Technical Electives (9 credits)

Technical Electives⁹ (9 credits) (See Supplemental Information)

Other Departmental Courses (36 credits)

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

- Humanities Selective¹ (satisfies Human Cultures Humanities for core) (See Supplemental Information) - Credit Hours: 3.00

- Science Selective³ (satisfies Science for core) (See Supplemental Information) - Credit Hours: 3.00
- Lab Science Selective² (satisfies Science for core) (See Supplemental Information) - Credit Hours: 3.00
- Written Communication Selective⁴ (satisfies Written Communication for core) (See Supplemental Information) - Credit Hours: 3.00

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

AGEC 21700 - Economics

Credit Hours: 3.00. National economic problems such as unemployment, recessions, inflation, taxation, bank interest rates, the growth of government, monetary systems, and a rising national debt are discussed along with the principles, policies, and institutions for solving these macroeconomic problems. Typically offered Fall Spring Summer.

ECON 25100 - Microeconomics

Credit Hours: 3.00. Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed. Typically offered Fall Spring Summer. CTL:ISH 1042 Microeconomics

ECON 25200 - Macroeconomics

Credit Hours: 3.00. Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in promoting economic growth and stable prices. Typically offered Fall Spring Summer. CTL:ISH 1041 Macroeconomics

- Mathematics/Statistics Selective⁵ (See Supplemental Information) - Credit Hours: 3.00
- History of Science and Technology Selective⁶ (See Supplemental Information) - Credit Hours: 3.00
- Advanced Communication Selective⁷ (See Supplemental Information) - Credit Hours: 3.00

Electives (9 credits)

- Electives⁹ (9 Credits) (See Supplemental Information)

University Core Requirements

(<http://www.purdue.edu/provost/initiatives/curriculum/course.html>)

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science - PSY 12000/SOC 10000
- Information Literacy - TECH 12000
- Science #1
- Science #2
- Science, Technology & Society Selective - TECH 12000
- Written Communication - ENGL 10600 or ENGL 10800
- Oral Communication - COM 11400
- Quantitative Reasoning - MA 15800/MA 15555

Program Requirements

Fall 1st Year

TLI 11100 - Gateway To Technology Leadership And Innovation

Credit Hours: 3.00. This course serves as an introduction to the Technology Leadership (TLI) programs. Students study the interface between technology and people, while developing strategies to lead, innovate, and solve problems in a technology-rich, systems environment. Concepts of globalization, ethical practices, and life-long learning are also explored. Typically offered Fall Spring Summer.

MA 15555 - Quantitative Reasoning

Credit Hours: 3.00. This course will cover important mathematical ideas, including proportion, weighted averages, linear models, exponential models, basic probability and statistics, and some algebra, by using concrete real-world problems. It will not be a prerequisite for any other mathematics course. Typically offered Fall Spring Summer.

MA 15800 - Precalculus- Functions And Trigonometry

Credit Hours: 3.00. Functions, Trigonometry, and Algebra of calculus topics designed to fully prepare students for all first semester calculus courses. Functions topics include Quadratic, Higher Order Polynomials, Rational, Exponential, Logarithmic, and Trigonometric. Other focuses include graphing of functions and solving application problems. Not Available for credit toward graduation in the College of Science. Students may not receive credit for both MA 15400 and MA 15800. Students may not receive credit for both MA 15900 and MA 15800. Typically offered Fall Spring Summer.

TECH 12000 - Design Thinking In Technology

Credit Hours: 3.00. Student will engage in critical analysis of real-world problems and global challenges. They will demonstrate

the ability to recognize opportunity and to take initiative in developing solutions applying the principles of human centered design. Students will be able to communicate effectively and to work well on teams. Problems and solutions will be examined from societal, cultural, and ethical perspectives. Typically offered Fall Spring Summer.

COM 11400 - Fundamentals Of Speech Communication

Credit Hours: 3.00. A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through problem identification and solution in discussion to informative and persuasive speaking in standard speaker-audience situations. Typically offered Fall Spring Summer. NOTE: Concurrent registration is not permitted for ENGL 10600 and COM 11400. CTL:ICM 1103 Fundamentals Of Public Speaking

- Humanities Selective¹ - Credit Hours: 3.00 *

15 Credits

Spring 1st Year

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

PSY 12000 - Elementary Psychology

Credit Hours: 3.00. Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking. As part of their learning experience, students participate in psychological experiments. Typically offered Fall Spring Summer. CTL:ISH 1020 Introduction To Psychology

SOC 10000 - Introductory Sociology

Credit Hours: 3.00. A survey course designed to introduce the student to the scene of human society. Fundamental concepts,

description, and analysis of society, culture, the socialization process, social institutions, and social change. Students of junior or senior standing should take SOC 31200, unless they are sociology or law and society majors. Typically offered Fall Spring Summer. CTL:ISH 1060 Introduction To Sociology

- Written Communication Selective*⁴ - Credit Hours: 3.00 - 4.00 *
- Lab Science Selective*² - Credit Hours: 3.00 *

15/16 Credits

Fall 2nd Year

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TLI 23500 - Introduction To Lean And Sustainable Systems

Credit Hours: 3.00. This course provides the foundation for technology systems processes and practices. The content covers the discussion of current systems issues, basic systems technology processes, and the role of systems engineering professionals in a global business environment. Topics include basic principles of systems thinking, the concepts of performance and cost measures, alternative design concepts, lean processes, and sustainable life-cycle management. Typically offered Fall Spring Summer.

MET 14300 - Materials And Processes I

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of metals and ceramics commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement, and testing. Typically offered Summer Fall Spring.

MET 14400 - Materials And Processes II

Credit Hours: 3.00. An overview of structures, properties, processing, and applications of polymers, composites, laminates, biomaterials, green materials, nanomaterials, and pharmaceuticals commonly used in industry is presented. Problem solving skills are developed in the areas of material selection, evaluation, measurement, and testing. This course serves as the gateway for the MET and MFET programs. Typically offered Summer Fall Spring.

- Mathematics/Statistics Selective⁵ - Credit Hours: 3.00
- Science Selective³ - Credit Hours: 3.00 *

15 Credits

Spring 2nd Year

ECON 21000 - Principles Of Economics

Credit Hours: 3.00. Economics is the study of decision making under conditions of scarcity. This course looks at the behavior of the individual consumer and firm and their interaction with the government. The second half of the course studies the macroeconomy and focuses on the causes of inflation, unemployment, and interest rate changes. The international economy also will be studied. No credit for management students. Typically offered Fall Spring Summer. CTL:ISH 1040 Introduction To Economics

MGMT 20010 - Business Accounting

Credit Hours: 3.00. The two primary objectives are to teach the skills to produce financial information-to send the relevant signals to decision makers; and to teach the skills to interpret the financial report-to receive the signals. To meet these objectives the students will gain an understanding of the reasoning behind the processes used to record financial information and the manner in which it is reported to external decision makers; gain an understanding of the four basic statements; and an understanding of the importance of financial statement information in interpreting the performance of organizations. (Not a prerequisite for MGMT 20100.)Typically offered Fall Spring Summer.

- Technical Elective⁹ - Credit Hours: 3.00
- History of Science and Tech Selective⁶ - Credit Hours: 3.00
- Elective⁸ - Credit Hours: 3.00

15 Credits

Fall 3rd Year

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

TLI 31400 - Leading Innovation In Organizations

Credit Hours: 3.00. This course provides the foundation for understanding the manner in which companies capture innovation and use it to set themselves apart from competitors. Topics covered include the attributes of organizations that are successful in fostering a culture of innovation; the characteristics and roles of leaders and members in innovative organizations; managerial processes and organizational systems that facilitate the successful development, commercialization, and adoption of innovative technologies, products, and services; and methods used to measure innovation-related outcomes. Typically offered Fall Spring Summer.

TLI 31600 - Statistical Quality Control

Credit Hours: 3.00. This course introduces the application of statistical and probability tools to develop, implement, and maintain effective quality assurance in technology and service systems. A systems approach to product or service quality from inception to disposal is employed. Factors affecting variation in quality are studied. The concepts and implications of quality from a global business environment are examined. Typically offered Fall Spring Summer.

MGMT 32300 - Principles Of Marketing

Credit Hours: 3.00. This mixed lecture and case course provides an overview of the functional area of marketing. The course is taught from a managerial perspective; it focuses on inputs to the marketing decision-making process, the process itself, and its results. No credit for students in the School of Management, except economics majors. Typically offered Fall Spring.

- Advanced Communication Selective⁷ - Credit Hours: 3.00

15 Credits

Spring 3rd Year

TLI 31500 - Innovative Product Development And Testing

Credit Hours: 3.00. This course introduces the process of technological innovation and new product development from concept to commercialization. Topics covered include ideation, R&D, prototyping (design and modeling), testing for quality, the patent process, intellectual property rights, marketing and cost evaluation. Typically offered Fall Spring Summer.

TLI 36700 - Teaching Design And Innovation I

Credit Hours: 3.00. This course focuses on the development of appropriate engineering design knowledge and skill required to effectively teach middle and high school engineering/technology education courses by infusing engineering design into the curriculum. Students will use 3-D solid modeling software, rapid prototyping, and other design technologies as they engage in the engineering design process through an open-ended engineering design challenge. Typically offered Fall Spring Summer.

TLI 34200 - Warehouse And Inventory Management

Credit Hours: 3.00. A course designed to develop understanding of types of warehouses, methods of organizing the warehouse environment, and determining efficient inventory control procedures. Technology applications related to the management of warehouse and inventory stock keeping units (SKU) are investigated. Storage of inventory, placement of inventory, picking, packing, shipping, and other internal logistics management topics will be explored. Typically offered Fall Spring Summer.

TLI 34250 - Purchasing And Contract Management

Credit Hours: 3.00. This course examines the processes by which goods and services are acquired through purchasing and contract management. Topics include procurement, contract strategies, source selection, identifying contract type, product liability and risk, the bid process and response evaluation; contract risk assessment, contract negotiation, and contract law. Typically offered Fall Spring Summer.

TLI 34300 - Technical And Service Selling

Credit Hours: 3.00. A study of sales models and techniques for technical and service sales in business to business environments, including development of channel relationships, long-term sales agreements, customer relationship management efforts, total cost of ownership tools and complex sales presentations. Covers critical sales skills such as e-economy sales and marketing, lead management, building credibility, consultative selling, ethical negotiations, and sustainable product management. Typically offered Fall Spring Summer.

TLI 43530 - Operations Planning And Management

Credit Hours: 3.00. A study of enterprise operations and management, demand forecasting, capacity analysis, research and development, production, personnel, and sales. Examples of the procedures necessary to provide a product or service are included. The course focuses on the tools necessary to solve problems, such as decision analysis, linear programming, transportation modeling, enterprise resource planning (ERP) systems, and forecasting models. Field trips may be required and industry-sponsored research projects are typically completed. Typically offered Fall Spring Summer.

15 Credits

Fall 4th Year

TLI 41400 - Financial Analysis For Technology Systems

Credit Hours: 3.00. The course provides students with financial tools needed by managers in technical and service fields. Topics include financial statement analysis, using common-sized statements and financial ratios; the strategic profit model; total cost of ownership; pricing for profitability; margin management; cash flow cycles; and budgeting. A corporate financial analysis project is typically required. Typically offered Fall Spring Summer.

TLI 34350 - Business To Business Sales Management

Credit Hours: 3.00. This course covers key topics in sales management while emphasizing customer relationship management, sales productivity, and the effects of technology on the sales function. Topics include analyzing multiple channel models; establishing sales plans; incentivizing and motivating the sales force; and evaluating, monitoring, and managing the effectiveness of the sales force. Typically offered Fall Spring Summer.

TLI 43640 - Lean Six Sigma

Credit Hours: 3.00. A study of the Lean Six Sigma quality and process improvement methodology, using the define, measure, analyze, improve, and control (DMAIC) process. The course addresses advanced topics in statistical quality; introduces quality management concepts as they pertain to the Lean Six Sigma methodology; and provides preparation for the Green Belt Certification exam. Typically offered Fall Spring Summer.

TLI 44275 - Global Transportation And Logistics Management

Credit Hours: 3.00. A study of the various aspects of logistics. The development, implementation, and control of physical transportation systems, product distribution, warehousing, and inventory policy models will be emphasized. A working knowledge of third and fourth party logistics and transportation strategies will be analyzed. The impact of logistics and transportation in the global environment will be discussed. Typically offered Fall Spring Summer.

TLI 48490 - Supply Chain Management Technology Capstone I: Strategic Planning

Credit Hours: 3.00. This course is the first of two integrative capstone courses for senior-level students. The focus is on how firms formulate, implement, and evaluate strategies. Teams of students will integrate program knowledge, coupled with strategic-management techniques learned, to make decisions and help chart the future of different organizations. The major responsibility of students in the capstone courses is to make objective strategic decisions and to justify them through oral and written communication. Typically offered Fall Spring Summer.

- Internship Experience¹¹ - Credit Hours: 0.00

15 Credits

Spring 4th Year

TLI 48495 - Supply Change Management Technology Capstone II: Strategic Analytics

Credit Hours: 3.00. This course is the second of two integrative capstone courses for senior-level students. Students will continue working in teams using a variety of planning and decision-making models to work with organizations to solve problems and

make sound decisions. The major responsibility of students in the capstone courses is to make objective strategic decisions and to justify them through oral and written communication. Typically offered Fall Spring Summer.

- Technical Elective⁹ - Credit Hours: 3.00
- Technical Elective⁹ - Credit Hours: 3.00
- Elective⁸ - Credit Hours: 3.00
- Elective⁸ - Credit Hours: 3.00
- Globalization Experience¹⁰ - Credit Hours: 0.00

15 Credits

Notes

*Fulfills University Core

1) 120 credits listed above are required for the TSCM Bachelor of Science degree.

2) 2.0 Graduation GPA required for Bachelor of Science degree.

3) 32 credits of upper division courses (30000 level or higher) must be taken at Purdue University, West Lafayette.

4) ANY COURSE TAKEN AT PURDUE CAN BE ATTEMPTED NO MORE THAN THREE TIMES (INCLUSIVE OF W, WF, I AND IF).

Degree Requirements

The student is ultimately responsible for knowing and completing all degree requirements.

myPurdue Plan is knowledge source for specific requirements and completion

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Aerospace Studies Minor

Minor Code: AEST

(effective Spring 2015, 201520)

Total Hours: 14 credits

All courses must have a grade of a "C" or higher.

Requirements for the Minor

A. The following courses are required (14 credits)

AFT 23000 - The Evolution Of USAF Air And Space Power I

Credit Hours: 1.00. Examines the development of air power from the beginning of manned flight through World War II. It traces the development of various concepts of employment of air power in this era and focuses upon factors that have prompted research and technological change. The impact of leadership on the development of Air Force doctrine is explored. Typically offered Fall.

AFT 24000 - The Evolution Of USAF Air And Space Power II

Credit Hours: 1.00. Examines the development of air power from the end of World War II to the present. A variety of events and elements in the history of air power are stressed, especially where these provide significant examples of the impact of air power on strategic thought. The use of air power as an instrument of national power in dealing with a number of world crises is explored. Typically offered Spring.

AFT 35100 - Air Force Leadership Studies I

Credit Hours: 3.00. Focuses on a study of leadership and management fundamentals, leadership ethics, and communicative skills required of Air Force lieutenants. Case studies are used to examine Air Force leadership and management situations to demonstrate and exercise practical application of concepts being studied. Typically offered Fall.

AFT 36100 - Air Force Leadership Studies II

Credit Hours: 3.00. Continuation of AFT 35100, with emphasis on the management functions of planning, organizing, and controlling. Communication skills are developed through oral briefings and writing assignments. Air Force officer professional knowledge requirements are introduced. Air Force case analyses simulate real-life situations. Typically offered Spring.

AFT 47100 - National Security Affairs I

Credit Hours: 3.00. This course examines the factors that play a part in the formulation of American defense policy, with particular emphasis on current issues. This policy uniquely combines aspects of American government, public administration, international relations, management, and economics. Typically offered Fall.

AFT 48100 - National Security Affairs II

Credit Hours: 3.00. Continuation of AFT 47100, with special emphasis on the role of the Air Force officer in the formulation and

implementation of defense policy. Preparation for active duty and a review of the military justice system is also covered this semester. Typically offered Spring.

Total Hours (14 credits)

AFT 30000 level courses may be taken in the same semester as AFT 40000 level courses (requires a waiver from AFROTC HQs)

Biometrics Minor

Minor Code: TBIO

All courses must have a grade of a "C" or higher.

Required Courses

IT 34500 - Automatic Identification And Data Capture

Credit Hours: 3.00. The course provides a basic understanding of automatic identification and data capture technologies and concepts with regard to how their deployment affects business and industry. Laboratory applications of bar codes, radio frequency identification, card technologies, and biometrics will be emphasized. Typically offered Fall Spring Summer.

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

STAT 30100 - Elementary Statistical Methods

Credit Hours: 3.00. Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means and proportions, correlation and regression. Software is used throughout. For statistics majors and minors, credit should be allowed in no more than one of STAT 30100, 35000, 50100, and in no more than one of STAT 50300 and STAT 51100. Prerequisite: college algebra. Typically offered Summer Fall Spring.

IT 54000 - Biometric Performance And Usability Analysis

Credit Hours: 3.00. An introduction of test methodologies from disciplines outside of biometrics, which include: usability, ergonomics, human factors, and human-computer interaction, in order to demonstrate how biometric data analysis can benefit from understanding how humans interact with biometric sensors during the testing and evaluation of biometric systems. The course explores test methods, case studies, and prior biometric testing reports in order to develop a test methodology that includes information on how users interact with biometric systems. Permission of department required. Typically offered Fall Spring Summer.

IT 54500 - Biometrics Technology And Applications

Credit Hours: 3.00. Examines biometrics technology as it relates to security, access control, and the authentication of individuals. The course will examine biometric technologies including iris, face, finger, hand geometry, dynamic signature verification, skin print analysis, and voice recognition. Permission of instructor required. Typically offered Summer Fall Spring.

TLI 49800 - Undergraduate Research In Technology Leadership And Innovation

Credit Hours: 1.00 to 3.00. Students will conduct research in the area of technology leadership and innovation with a primary investigator. The primary focus of the course is to contribute to ongoing research, while learning current research techniques. Analyzing data, determining courses of action, developing critical thinking, and presenting results are emphasized. Requires prior approval of, and arrangement with, a faculty research advisor. Permission of instructor required. Typically offered Fall Spring Summer.

Effective Fall 2016

Biotechnology Minor

Department of Technology Leadership & Innovation

Minor Code: BTCH

Biotechnology refers to harnessing the properties of a living organism to develop and manufacture products that benefit human life. With this minor, you will gain the basic knowledge and understanding of life science-based products, processes, and product quality to prepare you for employment opportunities in the area of biotechnology and biotech-manufacturing.

Required Courses

BIOL 11200 - Fundamentals Of Biology

Credit Hours: 2.00. This course is designed primarily to provide an introduction to the principles of biology for students pursuing a biotechnology minor. BIOL 11200, BIOL 11300 is a two-semester principles of biology sequence that introduces students to the major concepts of the discipline, with emphasis on the experimental and logical basis of the information presented. Biol 11200/BIOL 11300 includes lectures on diversity and evolution, and on the development, structure, and function of organisms, cell structure, cell function, ecology, genetics, biochemistry, and molecular biology. Typically offered Fall.

BIOL 11300 - Fundamentals Of Biology

Credit Hours: 2.00. This course is designed primarily to provide an introduction to the principles of biology for students pursuing a biotechnology minor. BIOL 11200, 11300 is a two-semester principles of biology sequence that introduces students to the major concepts of the discipline, with emphasis on the experimental and logical basis of the information presented. BIOL 11200/11300 includes lectures on diversity and evolution, and on the development, structure, and function of organisms, cell structure, cell function, ecology, genetics, biochemistry, and molecular biology. Typically offered Spring.

IT 22600 - Biotechnology Laboratory I

Credit Hours: 2.00. Focuses on nucleic acid manipulation. Modules include, making a eukaryotic library, identifying clones, sub-cloning into a bacterial expression vector and verification of the clone's identity by restriction analysis and DNA sequencing. Basic laboratory techniques (solution making, buffer preparation, good safety techniques), sterile technique and compliance procedures. Typically offered Summer Fall Spring.

IT 22700 - Biotechnology Laboratory II

Credit Hours: 2.00. The second laboratory course should use the cloned material to produce a protein. This protein should be purified, utilized immunologically, checked for purity by Edman degradation, and in some kind of bio assay. Typically offered Summer Fall Spring.

BIOL 23000 - Biology Of The Living Cell

Credit Hours: 3.00. An introduction to modern cell biology for students who may not have taken a previous college course in biology. All students with the appropriate prerequisites are welcome, and this course will be of special interest to students from engineering, chemistry, physics and computer science. This course will provide a solid foundation in modern cell biology concepts for engineers and students from other disciplines. Typically offered Fall.

BIOL 24100 - Biology IV: Genetics And Molecular Biology

Credit Hours: 3.00. An introduction to the principles of classical genetics and to molecular genetics. Topics covered are transmission of the genetic material (both in eukaryotes and prokaryotes); changes in the genetic material, structure, and function of the genetic material; and the manipulation of genetic material (recombinant DNA technology). Typically offered Spring.

TLI 52100 - Drug Development

Credit Hours: 3.00. A review of drug discovery and drug development, with emphasis on the regulatory aspects of these activities. Animal preclinical research and human clinical research are discussed in detail. In addition, the process for the assembly of an IND and NDA is discussed along with the Phases (I,II,III) of human clinical trials. The CMC (chemistry

manufacturing and control) aspects of drug development are presented along with ICH documents and manufacturing process analytical technologies. The course concludes with a brief review of international regulatory issues and patents. Typically offered Summer Fall Spring.

CNIT 22700 - Introduction To Bioinformatics

Credit Hours: 2.00. Survey course in Bioinformatics for information technology specialists including topics such as: virtual bio-instrumentation, data reduction and mining algorithms and tools, data visualization, pattern matching, modeling and simulation, computational methods, and collaborative application environments. Typically offered Summer Fall Spring.

IT 34200 - Introduction To Statistical Quality

Credit Hours: 3.00. Basic concepts of quality systems in business and manufacturing settings are presented. Basic statistical methods as applied to quality control, and an introduction to sampling plans are included. Field trips may be required. Typically offered Fall Spring Summer.

Note

All courses must have a grade of a "C" or higher.

Acceptable substitutions:

BIOL 11200 can be substituted by BIOL 12100, BIOL 11000

BIOL 11300 can be substituted by BIOL 13100, BIOL 11100

IT 34200 can be substituted by STAT 35000, STAT 50300, STAT 22500 or STAT 30100

Military Science and Leadership Minor

Minor Code: MILT

Total Hours: 15 credits

All courses must have a grade of a "C" or higher.

Requirements for the Minor

Required Courses:

MSL 30100 - Leadership And Problem Solving

Credit Hours: 3.00 or 4.00. Examines basic skills that underlie effective problem solving. Review the features and execution of the Leadership Development Program. Analyze military missions and plan military operations. Execute squad battle drills. Permission of department required. Typically offered Fall.

MSL 30200 - Leadership And Ethics

Credit Hours: 3.00 or 4.00. Probes leader responsibilities that foster an ethical command climate. Develop cadet leadership competencies. Prepare for success at National Advanced Leadership Camp. Recognize leader responsibility to accommodate subordinate spiritual needs. Apply principles and techniques of effective written and oral communication. Permission of department required. Typically offered Spring.

MSL 40100 - Leadership And Management

Credit Hours: 3.00 or 4.00. Builds on National Advanced Leadership Camp experience to solve organizational and staff problems. Discuss staff organization, functions, and processes. Examine principles of subordinate motivation and organizational change. Apply leadership and problem solving principles to a complex case study/simulation. Permission of department required. Typically offered Fall.

MSL 40200 - Officership

Credit Hours: 3.00 or 4.00. Designed to explore topics relevant to second lieutenants entering the Army. Describe legal aspects of decision making and leadership. Analyze Army organization for operations from the tactical to strategic level. Assess administrative and logistics management functions. Permission of department required. Typically offered Spring.

Note

*MSL 49000 - Directed Studies In Military Science - May be substituted for any above class with approval of Department Head.

Select One (1) of the following courses:

(another course may be substituted with approval of Department Head)

HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century

Credit Hours: 3.00. Using a variety of case studies, this course considers 20th-century turning points -- often violent and disastrous ones -- in an emerging global conversation about urgent world problems and their possible solutions. Typically offered Summer Fall Spring.

HIST 35100 - The Second World War

Credit Hours: 3.00. A study of the diplomacy, economic mobilization, and military operations of World War II, 1939-1945. Typically offered Fall Spring.

HIST 35500 - History Of American Military Affairs

Credit Hours: 3.00. Surveys American military policy from the colonial militia to the atomic age. Covers major wars and limited wars. The course also investigates the peacetime military functions, i.e., the Navy's role in diplomacy and the Army's involvement in Indian affairs. Typically offered Fall Spring.

HIST 43900 - Communist China

Credit Hours: 3.00. The evolution of the Communist movement (1921-1949) and the development of the Communist government (since 1949) in China. Attention is given to political, economic, social, and cultural changes. Typically offered Spring.

PHIL 23100 - Religions Of The West

Credit Hours: 3.00. (REL 23100) A comparative study of the origins, institutions, and theologies of the three major Western religions, Judaism, Christianity, and Islam. Typically offered Fall Spring Summer.

POL 23100 - Introduction To United States Foreign Policy

Credit Hours: 3.00. Designed to introduce students to the major themes and issues in contemporary U.S. foreign policy. Lectures, discussion, and readings will examine such areas as U.S. relationships with the major powers, the Third World, and international organizations. Typically offered Fall Spring.

POL 23700 - Modern Weapons And International Relations

Credit Hours: 3.00. This course introduces the student to the roles that modern weapons systems play in contemporary international relations. Typically offered Fall Spring.

POL 43900 - United States Foreign Policy Making

Credit Hours: 3.00. An analysis of the decision-making process in United States foreign policy. Typically offered Fall Spring.

Total Hours (15 credits)

Naval Science Minor

Minor Code: NAVL
Total Hours: 13 credits

All courses must have a grade of a "C" or higher.

Requirements for the Minor

Required Courses:

NS 11000 - Introduction To Naval Science

Credit Hours: 3.00. An introduction to the Naval Service that emphasizes organizational structure of the DoN and DoD, assigned roles and missions of both the USN and USMC, specific warfare communities/ career paths, basic elements of leadership, and Navy Core Values. Typically offered Fall.

NS 21300 - Sea Power And Maritime Affairs

Credit Hours: 3.00. An analysis through lectures, reading, and student discussion of the relationship of sea power to American history. Classical concepts and contemporary employment of sea power are examined by viewing historic and current naval and maritime developments. Typically offered Spring.

NS 21400 - Fundamentals Of Leadership

Credit Hours: 3.00. An introduction to leadership, leadership theory, management, and communications as they relate to organizational hierarchy. Topics include leadership, management, values, ethics, goal setting, communications, and team interactions. Typically offered Fall.

NS 41300 - Naval Leadership, Management, And Ethics

Credit Hours: 3.00. This course deals primarily with concepts of leadership and ethics in Navy and Marine Corps afloat and ashore. Case studies are extensively used to hone ethical decision making skills. Particular emphasis is placed upon the Human Resource Management System in the Navy to include an understanding of drugs and alcohol abuse, intercultural affairs, and minority affairs. Permission of instructor required. Typically offered Fall Spring.

Select One (1) of the following courses:

NS 21200 - Naval Weapons Systems

Credit Hours: 3.00. This course provides a basic introduction to the principles underlying ballistics, the fire control problem, detection methods, and integrated weapons systems. The major naval weapons and weapons systems are examined by components and then evaluated in light of current threats and missions. Typically offered Fall.

NS 31000 - Navigation

Credit Hours: 3.00. A comprehensive study of the theory, principles, and procedures of ship navigation, movements, and employment. The course examines celestial navigation, rules of the nautical road, piloting, practical chartwork, tides, instruments, publications, records, and electronic navigation systems. Typically offered Fall.

NS 31100 - Naval Operations

Credit Hours: 3.00. An operational analysis approach to tactical information and dispositions, fleet logistics and communications, relative motion and the maneuvering board, and tactical plots stressing force effectiveness and unity. Typically offered Spring.

NS 33000 - Evolution Of Warfare

Credit Hours: 3.00. This course is designed to provide a basic understanding of the art and concepts of warfare and its evolution from a warrior's perspective. This course will trace the evolution of warfare from ancient times through the present. The student will be familiarized with the concept of changing battlefields and forces that lead to changes in tactics and military developments. The student will also learn the basic terms and concepts of warfare. The student will conduct one instructional period in order to practice those skills applicable to NROTC development. During the course students will participate in class discussions designed to develop the application of principles and concepts that will be required on battlefields of today and the future. Typically offered Fall.

NS 35000 - Naval Ship Systems

Credit Hours: 3.00. This course deals with application of thermodynamics and mechanics in the design and operation of major propulsion equipment. Topics on thermodynamics, steam propulsion, nuclear power, gas turbines, internal combustion engines, auxiliary systems, ship construction and stability, engineering documentation, and new developments in naval engineering. Typically offered Spring.

NS 44000 - Amphibious Warfare And Leadership

Credit Hours: 3.00. An in-depth discussion of the concept and history of amphibious warfare; introduction to the psychology of military leadership. Typically offered Fall.

Organizational Leadership Minor

Department of Technology Leadership & Innovation

Minor Code: OLSV

All TLI courses must have a grade of a "C" or higher.

A minor in organizational leadership and supervision will expose you to current issues in leadership and how organizations operate. The knowledge and skills you learn from these classes will be beneficial in any career after graduation.

Required Courses

TLI 11200 - Foundations Of Organizational Leadership

Credit Hours: 3.00. A survey of individual and organizational behavioral concepts and principles that provide a foundation for leadership in technology organizations. The focus will be toward the understanding of behaviors necessary for effective organizational leadership, including concepts of work in a technology-rich environment. Typically offered Fall Spring Summer.

OLS 25200 - Human Relations In Organizations

Credit Hours: 3.00. A survey of the concepts that provide a foundation for the understanding of individual and group behavior in organizations. Special emphasis on typical interpersonal and leadership relationships. Typically offered Fall Spring Summer.

TLI 15200 - Business Principles For Organizational Leadership

Credit Hours: 3.00. This course will introduce the topic of applied organization leadership in the context of working organizations. Topics include basic functions, structures, and operations of organizations, and an introduction to reading and understanding balance sheets, cash flow statements, and profit-loss statements. Typically offered Fall Spring Summer.

OLS 27400 - Applied Leadership

Credit Hours: 3.00. Introduction to applied leadership in the context of organizational functions, structures, and operation. Typically offered Fall Spring Summer.

TLI 21300 - Project Management

Credit Hours: 3.00. Project management is an ad hoc technique for accomplishing specialized missions or work. Examples of projects include research and development studies, consulting projects, reorganizations efforts, implementation of total quality management, installation of new equipment, advertising campaigns, construction or other one-time efforts. This course will provide a leadership approach to project management, including team development and team selection. Typically offered Fall Spring Summer.

TLI 25300 - Principles Of Technology Strategy

Credit Hours: 3.00. This course explores technological strategy and the innovation process from an organizational perspective. The evolutionary path of technologies is dependent upon a variety of factors that when understood can lead to sound technology leadership practices. These factors include innovative organizational processes, economic enablers, and public policies. Students will explore these factors and their interrelationships with attention to how they contribute to practices such as technological evaluation, assessment, planning, strategy, and forecasting. Typically offered Fall Spring Summer.

OLS 28400 - Leadership Principles

Credit Hours: 3.00. Mastery of the basic knowledge managers need to effectively lead individual employees. Includes primary measures of performance success, leadership strategies, core leadership actions, and a comprehensive theory that explains how the strategies and actions cause positive attitudes and increased performance. Typically offered Summer Fall Spring.

TLI 25400 - Leading Change In Technology Organizations

Credit Hours: 3.00. This course provides a framework for creating, monitoring, and leading change within technology-rich organizations. Students will learn how to be change consultants, diagnose organizational problems, identify and implement change interventions at various outcome levels (i.e. individual, group, process, and the organization as a whole), and evaluate the success of change efforts. Typically offered Fall Spring Summer.

OLS 38600 - Leadership For Organizational Change And Innovation

Credit Hours: 3.00. Introduction to and overview of fundamental concepts of leading organizational change and innovation. Typically offered Summer Fall Spring.

Supply Chain Management Technology Minor

Department of Technology Leadership & Innovation

Minor Code: TSCM

All courses must have a grade of a "C" or higher.

Supply chain management technology is a discipline that is needed to some degree by virtually every organization. The minor offers the basic knowledge and understanding of supply chain management technologies to seek employment opportunities with a supporting skill set for supply chain operations.

Four key technologies typically influence the supply chain: software, electronic business technologies (including web portals), visibility and productivity technologies (bar codes, RFID, etc.), and process advances, such as Six Sigma and Lean processes.

Required Courses:

IT 21400 - Introduction To Lean Manufacturing

Credit Hours: 3.00. Lean manufacturing is a systematic approach to eliminating non-value added activities throughout a production system. Five basic principles characterize a lean production system: value definition, value stream mapping, flow optimization, pull production, and continuous improvement. Typically offered Fall Spring Summer.

TLI 23500 - Introduction To Lean And Sustainable Systems

Credit Hours: 3.00. This course provides the foundation for technology systems processes and practices. The content covers the discussion of current systems issues, basic systems technology processes, and the role of systems engineering professionals in a global business environment. Topics include basic principles of systems thinking, the concepts of performance and cost measures, alternative design concepts, lean processes, and sustainable life-cycle management. Typically offered Fall Spring Summer.

IT 23000 - Industrial Supply Chain Management

Credit Hours: 3.00. A study of industrial supply chains. Emphasis is on in-plant shipping and receiving functions; modes of distribution; functions of, and services provided by supply chains. Emphasis is placed on how manufacturers, distributors and end users can provide value in the supply chain. Typically offered Fall Spring Summer.

TLI 21400 - Introduction To Supply Chain Management Technology

Credit Hours: 3.00. This course is an introduction to supply chain management technology. Topics include supply chain functions including how to organize a supply chain, supply chain strategy, supply chain process mapping, and use of supply chain technologies, analysis, and performance measurements. Typically offered Fall Spring Summer.

IT 33000 - Industrial Sales And Sales Management

Credit Hours: 3.00. Sales and sales management techniques for analyzing distribution challenges and providing solutions through effective communication; establishing credibility, effective questioning techniques, developing and presenting solutions, anticipating objections and gaining a commitment, plus techniques for building, developing and compensating an effective sales organization. Typically offered Fall Spring.

TLI 34300 - Technical And Service Selling

Credit Hours: 3.00. A study of sales models and techniques for technical and service sales in business to business environments, including development of channel relationships, long-term sales agreements, customer relationship management efforts, total cost

of ownership tools and complex sales presentations. Covers critical sales skills such as e-economy sales and marketing, lead management, building credibility, consultative selling, ethical negotiations, and sustainable product management. Typically offered Fall Spring Summer.

IT 33200 - Purchasing, Inventory, And Warehouse Management

Credit Hours: 3.00. A course designed to develop understanding of types of warehouses, methods of organizing the warehouse environment, and determining efficient inventory control procedures. Purchasing of products, storage of inventory, placement of inventory and other internal logistics management topics will be explored. Real world projects conducted in lab environment will be utilized. Typically offered Fall Spring Summer.

TLI 34200 - Warehouse And Inventory Management

Credit Hours: 3.00. A course designed to develop understanding of types of warehouses, methods of organizing the warehouse environment, and determining efficient inventory control procedures. Technology applications related to the management of warehouse and inventory stock keeping units (SKU) are investigated. Storage of inventory, placement of inventory, picking, packing, shipping, and other internal logistics management topics will be explored. Typically offered Fall Spring Summer.

TLI 34250 - Purchasing And Contract Management

Credit Hours: 3.00. This course examines the processes by which goods and services are acquired through purchasing and contract management. Topics include procurement, contract strategies, source selection, identifying contract type, product liability and risk, the bid process and response evaluation; contract risk assessment, contract negotiation, and contract law. Typically offered Fall Spring Summer.

IT 34500 - Automatic Identification And Data Capture

Credit Hours: 3.00. The course provides a basic understanding of automatic identification and data capture technologies and concepts with regard to how their deployment affects business and industry. Laboratory applications of bar codes, radio frequency identification, card technologies, and biometrics will be emphasized. Typically offered Fall Spring Summer.

TLI 31300 - Technology Innovation And Integration: Bar Codes To Biometrics

Credit Hours: 3.00. This course provides the foundation for automatically capturing data in a system. The content covers an introduction to technology used in automatic identification and data capture systems, including: bar codes; radio frequency identification; smart cards, and biometrics. Topics also include an immersive semester project that examines the integration of these technologies, as well as advanced problem solving. Typically offered Fall Spring Summer.

Note

