College of Engineering

College of Engineering

Overview

Highly Ranked

U.S. News and World Report ranked both our graduate and undergraduate programs in the Top 15 nationwide. Purdue's College of Engineering is among the largest in the United States and includes 13 academic programs all with high rankings. And we're accelerating the speed at which we progress. Together, we're bringing our college from excellence to preeminence.

Aggressive Growth

Purdue's College of Engineering is embarking on a period of remarkable growth. With the support of the Provost and Board of Trustees, we expect to increase the size of the CoE faculty by as much as 30% and the CoE staff by 28% over the next five years. Growth on this scale is an opportunity for Transformational change. More information can be found on our Strategic Growth Initiative page.

Interdisciplinary, Global, and Diverse

Our growth, fueled by our alumni and friends, is giving us the tools and room to develop more revolutionary technologies that are already changing the world around us. We are **cutting across the established boundaries of Purdue's engineering and related disciplines.** In doing so, we're incorporating all perspectives. We're taking advantage of our own diverse makeup, and we're approaching issues from a world point of view. We're **equipping our students** with the capacity **to perform in a fast-changing and increasingly global economy.**

To find out more about Purdue Engineering, check out the rest of this Web site. You can also contact us, or please come for a visit to see what Purdue and you can do together.

Engineering Degrees

Aeronautical & Astronautical Engineering	Electrical Engineering
Agricultural Engineering	Environmental & Ecological Engineering
Biological Engineering	Industrial Engineering
Biomedical Engineering	Interdisciplinary Engineering *(BS only)*
Civil Engineering	Materials Engineering
Chemical Engineering	Mechanical Engineering

Computer Engineering	Multidisciplinary Engineering
Construction Engineering & Management	Nuclear Engineering

Admissions

http://www.admissions.purdue.edu/majors/colleges.php?ClgCd=ENGR

Advising

First-Year Engineering at Purdue

The First-Year Engineering (FYE) Program of the School of Engineering Education is the entry point for all beginning engineering students. The mission of this student-oriented program is to advise, prepare, and retain outstanding students for degree programs in Purdue's College of Engineering.

Advising Information

A. Talk to an FYE Advisor
   - make an appointment to meet with your FYE advisor
   - learn about the walk-in schedule for FYE advisors or for Student Representatives of Professional Engineering Schools
   - other common advisor questions

B. FYE Requirements
   - list of required courses and a typical plan of study for FYE students
   - general education requirements in FYE
   - guidance on the Science Selective
   - courses that can be substituted for FYE requirements
   - information about how the EAI is calculated
   - information about AP credit
   - substitute courses at Purdue regional campuses and transfer courses at other universities
   - the "four semester" rule

C. Registration portal (mypurdue.purdue.edu), including MyPurduePlan

D. Transition to Major (T2M) process

E. Think Summer
   - opportunities for taking courses in the summer
   - opportunities for professional advancement in summer
   - link to the Purdue Transfer Credit Database to see if a summer course elsewhere will transfer in as an FYE course

Requirements for First-Year Engineering

The requirements listed here are applicable for students with a "catalog term" of 201510 or higher (typically students who first entered Purdue in the Fall 2014 term or later). To complete FYE and be eligible for consideration for entry into an Engineering degree program, a student must complete the following courses:

- ENGR 13100, ENGR 14100, **or** (EPCS 11100 **and** EPCS 12100)
- ENGR 13200, ENGR 14200, **or** ENGR 13300
- MA 16100 **or** MA 16500
- MA 16200, MA 16600 **or** MA 17300
- CHM 11500 **or** (CHM 11100 **and** CHM 11200)
- PHYS 17200
- A Science Selective course, chosen from:
    - CHM 11600
    - CS 15900
    - BIOL 11000
    - BIOL 11100
    - BIOL 13100
    - BIOL 12100 **and** BIOL 13500
    - ENGR 14100 **and** ENGR 14200 for students who entered Purdue prior to Fall 2016 only
- A course that meets the Written Communication foundational outcome, typically ENGL 10600 **or** ENGL 10800
- A course that meets the Oral Communication foundational outcome, typically COM 11400

Minimum Grades: Earned grades must be C- or better for any course used to meet the requirements above, if the grade posts to the Purdue transcript.

Grade Average: To complete FYE, the student's cumulative GPA must be of 2.00 or greater, and an Engineering Admissions Index (EAI) must be 2.00 or greater. Calculation of the EAI is equivalent to the calculation of GPA for courses used to meet all FYE requirements 1-9 above. If a student meets a requirement in more than one way, only one will be used to calculate the EAI. The FYE Curriculum Committee will be responsible for keeping an updated, clear, and universal set of rules for determining which course is used in EAI for these situations. These rules are available to students in the FYE Advising office.

Total Number of Credits: Students must earn a total of at least 30 credits.

Contact Information

Office of the Dean of Engineering

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For additional faculty and staff contact information, consult our directory.

School of Aeronautics and Astronautics

Aeronautical and Astronautical Engineering

The Aeronautics and Astronautics curriculum emphasizes the disciplines of aerodynamics, aerospace systems, astrodynamics and space applications, propulsion, structures and materials, dynamics and control, and further provides courses that integrate these disciplines into the design of flight vehicles to perform the required mission.

The field of aeronautical and astronautical engineering addresses the challenging problems encountered in the design and operation of many types of aircraft, missiles, and space vehicles and places a constant demand on research and development groups for an even greater understanding of basic physical phenomena.

Employers from around the world contact the School of Aeronautics and Astronautics with information regarding positions available within their organizations.

Mission Statement

To serve the State of Indiana and our Nation by providing degree granting programs - recognized as innovative learning experiences - that prepare students to be exceptional, recognized contributors to aeronautical and astronautical engineering in industry, government laboratories and universities.

To develop and maintain quality graduate research programs in technical areas relevant to Aeronautics and Astronautics and to foster a collegial and challenging intellectual environment necessary to conduct enabling and breakthrough research for aerospace systems.

Faculty

https://engineering.purdue.edu/AAE/People/Faculty

Contact Information

Reception

Armstrong Hall of Engineering
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Undergraduate Student Services

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Lisa Crain
Undergraduate Program Coordinator
ARMS 3314
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Graduate Information

For Graduate Information please see Aeronautics and Astronautics Graduate Program Information.

Baccalaureate

Aeronautics and Astronautics Engineering, BSAAE

About the Program

The field of aeronautical and astronautical engineering includes the challenging problems encountered in the design and operation of many types of aircraft, missiles, and space vehicles and puts a constant demand on research and development groups for an even better understanding of basic physical phenomena.

Aeronautical education has existed on at least a small scale at Purdue University since about 1920. Aeronautical Engineering degrees were first offered at Purdue by the School of Mechanical & Aeronautical Engineering during WWII, and the first B.S. Degrees were awarded in 1943. The School of Aeronautics was established as a separate entity on July 1, 1945. (For a complete history visit the School's history page.)

During the first sixty years of its existence, the School of Aeronautics and Astronautics has awarded 5,824 BS degrees, 1,439 MS degrees and 474 PhD degrees. These graduates have made significant contributions to the aerospace field, and have held positions of high responsibility in government and private industry. Twenty-three graduates of Purdue have become astronauts, and of these, fourteen have been graduates of the School of Aeronautics and Astronautics.

The Aeronautical and Astronautical Engineering curriculum concentrates on the fundamental subject areas necessary to the research, development, design, and operation of the aerospace industry. The curriculum is designed to emphasize the disciplines of aerodynamics, propulsion, structures, dynamics, and control, and further provides design courses to integrate these disciplines into the design of flight vehicles that will perform the required mission. A strong background in mathematics and physics is required to pursue these disciplines, and extensive use of computers and programming skills is a necessity.

The future holds many interesting challenges. The record shows that our graduates have demonstrated their ability to provide technical leadership in a variety of successfully completed projects. A degree from Purdue University in the School of Aeronautics and Astronautics promises to prepare our future graduates for the 21st century in the aerospace field.

code-BS-AAE

130 Credits for Graduation
Students must have a graduation index of 2.0

Program Requirements Summary

The Summary of Program Requirements for Aeronautics & Astronautics Engineering (2015-16) is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

Required AAE Courses (40 credits)

- AAE 20000 - Undergraduate Sophomore Seminar
- AAE 20300 - Aeromechanics I
- AAE 25100 - Introduction To Aerospace Design
- AAE 20400 - Aeromechanics II
- AAE 20401 - Aeromechanics II Laboratory
- AAE 30000 - Undergraduate Junior Seminar
- AAE 30100 - Signal Analysis For Aerospace Engineering
- AAE 33300 - Fluid Mechanics
- AAE 33301 - Fluid Mechanics Laboratory
- AAE 33400 - Aerodynamics

- AAE 33401 - Aerodynamics Laboratory or
- AAE 35201 - Structural Analysis I Laboratory

- AAE 33800 - Thermal Sciences or
- AAE 33900 - Aerospace Propulsion

- AAE 34000 - Dynamics And Vibrations
- AAE 35200 - Structural Analysis I
- AAE 36400 - Control System Analysis
- AAE 36401 - Control Systems Laboratory
- AAE 40000 - Undergraduate Senior Seminar

- AAE 42100 - Flight Dynamics And Control or
- AAE 44000 - Spacecraft Attitude Dynamics

- AAE 45000 - Spacecraft Design
  or
- AAE 45100 - Aircraft Design

AAE Technical Electives - (6 credits)

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00

Major/Minor Electives (15 credits)

Other Departmental /Program Course Requirements (50 credits)

- CGT 16300 - Graphical Communication And Spatial Analysis
- CHM 11500 - General Chemistry
- COM 11400 - Fundamentals Of Speech Communication (strongly recommended)
- CS 15900 - Programming Applications For Engineers (Satisfies FYE requirement)
- ENGR 13100 - Transforming Ideas To Innovation I (Satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (Satisfies FYE requirement)

- ENGL 10600 - First-Year Composition (Satisfies FYE requirement) or
- ENGL 10800 - Accelerated First-Year Composition

- MA 16500 - Analytic Geometry And Calculus I (Satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (Satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (Satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (Satisfies FYE requirement)

- MA 26100 - Multivariate Calculus (satisfies Math and physics requirement)
- MA 26500 - Linear Algebra (satisfies Math and physics requirement)
- MA 26600 - Ordinary Differential Equations (satisfies Math and physics requirement)
- MA 30400 - Differential Equations And Analysis Of Nonlinear Systems For Engineering And The Sciences
- ME 20000 - Thermodynamics I
- PHYS 17200 - Modern Mechanics (Satisfies FYE requirement)

- PHYS 24100 - Electricity And Optics (satisfies Math and physics requirement) or
- PHYS 27200 - Electric And Magnetic Interactions

Note

COM 11400 is a highly recommended General elective and is counted separately from the 18 credits of Gen Ed requirement. Therefore the Gen Ed requirement is 18 + 3 credits = 21 when including COM 11400. AAE also requires students to complete a business elective and a communications/writing elective at the 300-level or higher.

General Electives (18 credits)

- G.E.-I - Credit Hours: 3.00
- G.E.-II - Credit Hours: 3.00
- G.E.-III - Credit Hours: 3.00
- G.E.-IV - Credit Hours: 3.00
- G.E.-V - Credit Hours: 3.00
- G.E.-VI - 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

Program Requirements

https://engineering.purdue.edu/AAE/Academics/Undergrad/pos/20130528_POS_Instructions.pdf

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry *

- ENGL 10600 - First-Year Composition * or
- ENGL 10800 - Accelerated First-Year Composition *

- ENGR 13100 - Transforming Ideas To Innovation I *
- CGT 16300 - Graphical Communication And Spatial Analysis **

15 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics *
- CS 15900 - Programming Applications For Engineers **
- ENGR 13200 - Transforming Ideas To Innovation II *
- COM 11400 - Fundamentals Of Speech Communication *

16 Credits

Fall 2nd Year

- AAE 20300 - Aeromechanics I ++
- AAE 25100 - Introduction To Aerospace Design
- MA 26100 - Multivariate Calculus
- Gen Elec I - Credit Hours: 3.00
- MA 26500 - Linear Algebra
- AAE 20000 - Undergraduate Sophomore Seminar

16 Credits

Spring 2nd Year

- AAE 20400 - Aeromechanics II ++
- AAE 20401 - Aeromechanics II Laboratory
- PHYS 24100 - Electricity And Optics **
- MA 26600 - Ordinary Differential Equations
- ME 20000 - Thermodynamics I **
- Gen Elec II - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- AAE 33300 - Fluid Mechanics
- AAE 33301 - Fluid Mechanics Laboratory
- AAE 35200 - Structural Analysis I
- MA 30400 - Differential Equations And Analysis Of Nonlinear Systems For Engineering And The Sciences
- AAE 30100 - Signal Analysis For Aerospace Engineering
- AAE 30000 - Undergraduate Junior Seminar
- Gen Elec III - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- AAE 33400 - Aerodynamics

- AAE 33401 - Aerodynamics Laboratory or
- AAE 35201 - Structural Analysis I Laboratory

- AAE 33800 - Thermal Sciences or
- AAE 33900 - Aerospace Propulsion

- AAE 34000 - Dynamics And Vibrations
- AAE 36400 - Control System Analysis
- Gen Elec IV - Credit Hours: 3.00

16 Credits

Fall 4th Year

- AAE 36401 - Control Systems Laboratory
- Major/Minor Electives - Credit Hours: 6.00
- Gen Elec V - Credit Hours: 3.00
- Tech Elec - Credit Hours: 3.00
- AAE 40000 - Undergraduate Senior Seminar

- AAE 42100 - Flight Dynamics And Control or Tech Elec

17 Credits

Spring 4th Year

- AAE 44000 - Spacecraft Attitude Dynamics or Tech Elec
- Major/Minor Electives - Credit Hours: 9.00
- Gen Elec VI - Credit Hours: 3.00
- AAE 45000 - Spacecraft Design or
- AAE 45100 - Aircraft Design

18 Credits

Note

*Satisfies a University Core Requirement
**Satisfies a Non-departmental Major Course Requirement

++Students must earn a "C-" or better

130 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

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

Department of Agricultural and Biological Engineering

Overview

Welcome to the Department of Agricultural & Biological Engineering at Purdue University. Our mission is to prepare students, citizens, and industry for the future through innovative education and extension/outreach programs and the discovery of knowledge.

Our cross-disciplinary strengths include academic and research programs in agriculture, biology, and engineering, as well as dual degree programs. Our engineering degrees are granted by the College of Engineering and our agricultural systems management degree is granted by the College of Agriculture. The job market remains strong for our graduates who have excellent career opportunities, and demand for our graduates is very high.

Our faculty, students and staff are pursuing cutting-edge research that improves quality of life as well as advances scientific and engineering frontiers. Our extension programs are helping citizens of Indiana and beyond improve their lives.

Overview of Agricultural & Biological Engineering

Agricultural Systems Management

The Agricultural Systems Management program prepares graduates to develop and manage technology-intensive agricultural production and processing systems. ASM graduates are problem solvers. They benefit from a diverse applied agricultural curriculum that includes opportunities for extensive career-related experience at home and abroad.

Biological Engineering

This program deals with the applications of basic scientific and engineering principles to the design, development and operation of large scale manufacture of food and biologically-based products. Such products are environmentally friendly, renewable and represent a future wave of consumer demand for better health and environment. In addition to learning the engineering aspects of food and biological processing, you will also learn the basic principles in biochemistry and food sciences.

Dual Degree programs with Biological Engineering and Biochemistry or Pharmaceutical Sciences are also offered - these programs require an additional year of courses leading to two degrees.

Agricultural Engineering - emphasis in Environmental & Natural Resources Engineering

This emphasis area prepares engineers with specialized expertise to design and analyze new and environmentally sound ways to produce food and fiber while conserving our natural resources. Students gain expertise in areas such as watershed management, geographic information systems, computer-based watershed modeling, and contaminant transport models, and soil and water conservation engineering practices.

Agricultural Engineering - emphasis in Machine Systems Engineering

This emphasis area prepares students with a background in mechanical design, hydraulics, instrumentation and control, finite element analysis, electronics and sensors to design, develop, analyze and operate machines and systems for agricultural and biological products and processes, materials handling, construction and mining, forestry, lawn- and ground-care, and food and fiber production and processing.

Faculty

https://engineering.purdue.edu/ABE/People/ptFaculty

Contact Information

Purdue University
Agricultural & Biological Engineering

225 South University Street
West Lafayette, IN 47907-2093
Phone: (765) 494-1162
Fax: (765) 496-1115
www.purdue.edu/abe

Graduate Information

For Graduate Information please see Agricultural and Biological Engineering Graduate Program Information.

Undergraduate Information

For undergraduate programs and information, please see the College of Agriculture, or the Department of Agricultural and Biological Engineering page.

Weldon School of Biomedical Engineering

Biomedical Engineering

Biomedical Engineering applies principles and methods of engineering and life sciences to design solutions for human biology and medicine.

Undergraduate students take life-science courses in combination with engineering design courses, studying physical and chemical properties of human tissues in order to design more effective implants. Other areas and projects include cell and tissue research, as well as the design of new biomaterials for use in medical therapies.

The Weldon School of Biomedical Engineering is housed in a state-of-the-art building designed to enhance both teaching and research. The $25-million, 91,000-square-foot facility (completed in spring 2006) will accommodate the rapid growth of biomedical engineering and its exponential increase in job opportunities.

Programs of focus include biomaterials, musculoskeletal biomechanics, tissue engineering, medical imaging, cardiovascular instrumentation, therapeutic and diagnostic devices, and biological signal processing.

Faculty

https://engineering.purdue.edu/BME/People

Contact Information

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Weldon BME Undergraduate Program
BME Undergraduate Webpage

WeldonBMEUndergrad@purdue.edu

Graduate Information

For Graduate Information please see Biomedical Engineering Graduate Program Information.

Baccalaureate

Biomedical Engineering, BSBME

About the Program

Biomedical Engineering applies principles and methods of engineering and life sciences to design solutions for human biology and medicine.

Undergraduate students take life-science courses in combination with engineering design courses, studying physical and chemical properties of human tissues in order to design more effective implants. Other areas and projects include cell and tissue research, as well as the design of new biomaterials for use in medical therapies.

The Weldon School of Biomedical Engineering is housed in a state-of-the-art building designed to enhance both teaching and research. The $25-million, 91,000-square-foot facility (completed in spring 2006) will accommodate the rapid growth of biomedical engineering and its exponential increase in job opportunities.

Programs of focus include biomaterials, musculoskeletal biomechanics, tissue engineering, medical imaging, cardiovascular instrumentation, therapeutic and diagnostic devices, and biological signal processing.

Summary of Program Requirements

The Summary of Program Requirements for Biomedical Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

Code-BME
129 Credits for Graduation
*** Courses used to calculate BME Major GPA**

Required Biomedical Engineering Courses (40 credits)

https://engineering.purdue.edu/BME/Academics/BMEUndergraduateProgram/AcademicDocuments/PlanofStudy

BME Courses (29 credits) *

- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications

- BME 20500 - Biomolecular And Cellular Systems Laboratory
- BME 29000 - Frontiers In Biomedical Engineering
- BME 20400 - Biomechanics Of Hard And Soft Tissues
- BME 20600 - Biomechanics And Biomaterials Laboratory
- BME 25600 - Physiological Modeling In Human Health
- BME 30100 - Bioelectricity
- BME 30400 - Biomedical Transport Fundamentals
- BME 30500 - Bioinstrumentation Circuit And Measurement Principles
- BME 30600 - Biotransport Laboratory
- BME 39000 - Professional Development And Design In Biomedical Engineering
- BME 48800 - Preliminary Senior Project Design
- BME 48900 - Senior Design Project Lab
- BME 49000 - Professional Elements Of Design

Core Engineering Courses (12 credits) *

- ME 27000 - Basic Mechanics I
- ME 20000 - Thermodynamics I
- MSE 23000 - Structure And Properties Of Materials
- ECE 30100 - Signals And Systems

Selectives (21 credits)

- Engineering Selectives (Including Quantitative Breadth Requirement) - Credit Hours: 15.00
- Life Sciences Core Selectives - Credit Hours: 6.00

Other Program Course Requirements (50 credits)

- MA 16500 - Analytic Geometry And Calculus I (Satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (Satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (Satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (Satisfies FYE requirement) or
- MA 17300 - Calculus And Analytic Geometry II (Satisfies FYE requirement)

- MA 26100 - Multivariate Calculus (Satisfies Math and Physics requirement)
- MA 26200 - Linear Algebra And Differential Equations (Satisfies Math and Physics requirement)
- STAT 51100 - Statistical Methods (Satisfies Biomedical Engineering Required Course requirement)*
- CHM 11500 - General Chemistry (Satisfies FYE requirement; Science Selective for core)

- CHM 11600 - General Chemistry (Satisfies FYE requirement; Science Selective for core) or
- CHM 13600 - General Chemistry Honors (Satisfies FYE requirement; Science Selective for core)

- PHYS 17200 - Modern Mechanics (Satisfies FYE requirement; Science Selective for core)
- PHYS 24100 - Electricity And Optics (Satisfies Math and Physics requirement)
- BIOL 23000 - Biology Of The Living Cell (Satisfies Life Science Core requirement)

- ENGR 13100 - Transforming Ideas To Innovation I (Satisfies FYE requirement) or
- ENGR 14100 - Honors Creativity And Innovation In Engineering Design I (Satisfies FYE requirement)

- ENGR 13200 - Transforming Ideas To Innovation II (Satisfies FYE requirement) or
- ENGR 14200 - Honors Creativity And Innovation In Engineering Design II (Satisfies FYE requirement)

- CS 15900 - Programming Applications For Engineers (Satisfies FYE Science Requirement)
- ENGL 10100 - English Composition I (Satisfies FYE requirement; Written Communication/ Informational Literacy for core)
- Unrestricted Electives - Credit Hours: 3.00

General Electives (18 credits)

- Ethics/Healthcare Policy Selective - Credit Hours: 3.00
- G.E.-II - Credit Hours: 3.00
- G.E.-III - Credit Hours: 3.00
- G.E.-IV - Credit Hours: 3.00
- G.E.-V - Credit Hours: 3.00
- G.E.- VI - 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

Program Requirements

https://engineering.purdue.edu/BME/Academics/Undergraduate/ProgramRequirements/Fall2013PlanofStudyandProgramReqs

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- PHYS 17200 - Modern Mechanics
- ENGR 13100 - Transforming Ideas To Innovation I

- ENGL 10100 - English Composition I or
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition

17/18 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- CHM 11600 - General Chemistry
- CS 15900 - Programming Applications For Engineers
- ENGR 13200 - Transforming Ideas To Innovation II
- General Elective - Credit Hours: 3.00

16 Credits

Fall 2nd Year

- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- BIOL 23000 - Biology Of The Living Cell
- BME 20500 - Biomolecular And Cellular Systems Laboratory
- BME 29000 - Frontiers In Biomedical Engineering
- MA 26100 - Multivariate Calculus
- ME 27000 - Basic Mechanics I
- PHYS 24100 - Electricity And Optics

18 Credits

Spring 2nd Year

- BME 20400 - Biomechanics Of Hard And Soft Tissues
- MSE 23000 - Structure And Properties Of Materials
- BME 20600 - Biomechanics And Biomaterials Laboratory
- BME 25600 - Physiological Modeling In Human Health
- MA 26200 - Linear Algebra And Differential Equations
- ME 20000 - Thermodynamics I

17 Credits

Fall 3rd Year

- BME 30100 - Bioelectricity
- BME 30500 - Bioinstrumentation Circuit And Measurement Principles
- BME 30400 - Biomedical Transport Fundamentals
- BME Technical Elective - Credit Hours: 3.00
- General Education or Ethics Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- BME 30600 - Biotransport Laboratory
- BME 39000 - Professional Development And Design In Biomedical Engineering
- ECE 30100 - Signals And Systems
- STAT 51100 - Statistical Methods
- BME Technical Selective - Credit Hours: 3.00
- General Education or Ethics Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- BME 48800 - Preliminary Senior Project Design
- BME 48900 - Senior Design Project Lab
- BME 49000 - Professional Elements Of Design
- General Elective - Credit Hours: 3.00
- Life Science Elective - Credit Hours: 3.00
- Unrestricted Electives - Credit Hours: 3.00

16 Credits

Spring 4th Year

- BME Technical Selective - Credit Hours: 3.00
- BME Technical Elective - Credit Hours: 3.00
- Life Science Selective - Credit Hours: 3.00
- General Elective - Credit Hours: 3.00
- General Elective - Credit Hours: 3.00

15 Credits

Note

129 semester credits required for Bachelor of Science in Biomedical Engineering degree.

A minimum Graduation Index and BME Major GPA of at least 2.0 is required to qualify for graduation with a BSBME.

All required First Year Engineering (FYE) courses must be completed with a C- or above for entry into BME.

Degree Requirements

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

Degree Works 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

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

School of Chemical Engineering

Chemical Engineering Overview

Chemical Engineering remains a premier source of well-educated, well-prepared chemical engineers, educating students using innovative technologies and fostering an environment that inspires leading-edge research.

Chemical engineers work in a wide range of industries with worldwide impact. Applications include energy; pharmaceuticals and biological materials; the nutritional value of food; environmental protection and restoration; materials for computing, sensing, and communications; personal care, home care, and home health products; and system and data management.

Chemical engineers rely on their knowledge of mathematics and science - particularly chemistry - to overcome technical problems in industry and society. While the chemist studies basic chemical reactions, the chemical engineer applies the results of chemical research and transforms laboratory processes into efficient, full-scale processes or facilities. With their strong problem-solving skills and fundamental background in mathematics, physics, chemistry and biology, chemical engineers can seize opportunities to translate industrial problems into competitive advantages. Currently, chemical engineers demand among the highest salaries for college graduates with a bachelor's degree.

Research here is currently being conducted with polymers and materials, nanoscale science and engineering, fluid mechanics, catalyst design and engineering, sensors, biotechnology, and many others.

Faculty

https://engineering.purdue.edu/ChE/People/ptFaculty

Contact Information

Chemical Engineering Undergraduate Office

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(765) 494-0307 FAX

Dr. David Corti

Director of Undergraduate Studies, Professor of Chemical Engineering

Karissa Raderstorf

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Graduate Information

For Graduate Information please see Chemical Engineering Graduate Program Information.

Baccalaureate

Chemical Engineering, BSCHE

About the Program

Chemical Engineering remains a premier source of well-educated, well-prepared chemical engineers, educating students using innovative technologies and fostering an environment that inspires leading-edge research.

Chemical engineers work in a wide range of industries with worldwide impact. Applications include energy; pharmaceuticals and biological materials; the nutritional value of food; environmental protection and restoration; materials for computing, sensing, and communications; personal care, home care, and home health products; and system and data management.

Chemical engineers rely on their knowledge of mathematics and science - particularly chemistry - to overcome technical problems in industry and society. While the chemist studies basic chemical reactions, the chemical engineer applies the results of chemical research and transforms laboratory processes into efficient, full-scale processes or facilities. With their strong problem-solving skills and fundamental background in mathematics, physics, chemistry and biology, chemical engineers can seize opportunities to translate industrial problems into competitive advantages. Currently, chemical engineers demand among the highest salaries for college graduates with a bachelor's degree.

Research here is currently being conducted with polymers and materials, nanoscale science and engineering, fluid mechanics, catalyst design and engineering, sensors, biotechnology, and many others.

Summary of Program Requirements

The Summary of Program Requirements for Chemical Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

BSChE
CHE-BSE
130 Credits for Graduation

First Year Engineering Courses (31 credits)

https://engineering.purdue.edu/ENE/InfoFor/CurrentStudents/FYEPlan

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry (satisfies FYE Science Selective requirement)
- COM 11400 - Fundamentals Of Speech Communication (satisfies FYE General Education Elective)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition

- ENGR 13100 - Transforming Ideas To Innovation I or
- ENGR 14100 - Honors Creativity And Innovation In Engineering Design I

- ENGR 13200 - Transforming Ideas To Innovation II or
- ENGR 14200 - Honors Creativity And Innovation In Engineering Design II

- MA 16500 - Analytic Geometry And Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I

- MA 16600 - Analytic Geometry And Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II

- PHYS 17200 - Modern Mechanics

Chemical Engineering Major Courses (81 credits)

https://engineering.purdue.edu/ChE/Academics/Undergrad/degree_requirements

ChE Core Courses (41 credits)

- CHE 20000 - Chemical Engineering Seminar
- CHE 20500 - Chemical Engineering Calculations
- CHE 21100 - Introductory Chemical Engineering Thermodynamics
- CHE 30000 - Chemical Engineering Seminar

- CHE 30600 - Design Of Staged Separation Processes
- CHE 32000 - Statistical Modeling And Quality Enhancement
- CHE 34800 - Chemical Reaction Engineering
- CHE 37700 - Momentum Transfer
- CHE 37800 - Heat And Mass Transfer
- CHE 40000 - Professional Guidance
- CHE 42000 - Process Safety Management
- CHE 43500 - Chemical Engineering Laboratory
- CHE 45000 - Design And Analysis Of Processing Systems
- CHE 45600 - Process Dynamics And Control

ChE Science Core (18 credits)

- CHM 26100 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26200 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- CHM 37000 - Topics In Physical Chemistry
- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics

ChE Selectives - Select course for each requirement (22 credits)

https://engineering.purdue.edu/ChE/Academics/Undergrad/degree_requirements

- Biology Selective - Credit Hours: 3.00
- Chemical Engineering Selective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- Math Selective I - Credit Hours: 3.00 or 4.00
- Math Selective II - Credit Hours: 3.00 or 4.00
- Technical Selective - Credit Hours: 3.00

General Education Electives (18 credits)

https://engineering.purdue.edu/ENE/InfoFor/CurrentStudents/genedcourses

- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education 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

Program Requirements

https://engineering.purdue.edu/ChE/Academics/Undergrad/degree_requirements

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I

- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition
- ENGR 13100 - Transforming Ideas To Innovation I

14/15 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II

- CHM 11600 - General Chemistry
- PHYS 17200 - Modern Mechanics
- COM 11400 - Fundamentals Of Speech Communication
- ENGR 13200 - Transforming Ideas To Innovation II

17/18 Credits

Fall 2nd Year

- CHE 20000 - Chemical Engineering Seminar Fall Only
- CHE 20500 - Chemical Engineering Calculations
- CHM 26100 - Organic Chemistry Fall Only
- CHM 26300 - Organic Chemistry Laboratory Fall Only
- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics
- General Education Elective - Credit Hours: 3.00

18 Credits

Spring 2nd Year

- CHE 21100 - Introductory Chemical Engineering Thermodynamics
- CHE 32000 - Statistical Modeling And Quality Enhancement
- CHM 26200 - Organic Chemistry Spring Only
- CHM 26400 - Organic Chemistry Laboratory Spring Only
- Math Selective I - Credit Hours: 3.00 or 4.00
- General Education Elective - Credit Hours: 3.00

17/18 Credits

Fall 3rd Year

- CHE 30600 - Design Of Staged Separation Processes
- CHE 37700 - Momentum Transfer
- CHM 37000 - Topics In Physical Chemistry
- Math Selective II - Credit Hours: 3.00 or 4.00
- Biology Selective - Credit Hours: 3.00

16/17 Credits

Spring 3rd Year

- CHE 30000 - Chemical Engineering Seminar Spring Only
- CHE 37800 - Heat And Mass Transfer
- CHE 34800 - Chemical Reaction Engineering
- Technical Elective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

17 Credits

Fall 4th Year

- CHE 40000 - Professional Guidance Fall Only
- CHE 45600 - Process Dynamics And Control Fall Only
- CHE 43500 - Chemical Engineering Laboratory
- CHE 42000 - Process Safety Management
- General Education Elective - Credit Hours: 3.00

14 Credits

Spring 4th Year

- CHE 45000 - Design And Analysis Of Processing Systems Spring Only
- CHE Elective - Credit Hours: 3.00
- ENGR Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

16 Credits

Note

Students must earn a "C" or better in CHE 20500 to enroll in any other CHE course.

Students must earn a "C-" or better in CHE 21100, CHE 30600, CHE 32000, CHE 34800, CHE 37700, CHE 37800 to enroll in upper level CHE courses.

130 semester credits required for Bachelor of Science degree in Chemical Engineering.

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

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

Lyles School of Civil Engineering

About Civil Engineering

Civil engineers design and construct the world's infrastructure: buildings and bridges; tunnels, dams, and levees; harbors and canals; water-supply and waste-disposal systems; airports, highways, and railroads; pipelines and power lines.

As a Civil Engineering undergraduate student you have many opportunities to plan your curriculum and even more opportunities to build your future in civil engineering!

You can explore the nine areas of study within civil engineering along with selecting the courses to design your own plan of study. You and your advisor can discuss your career goals to tailor a program to meet your goals. See our curriculum flow charts for a glimpse of the courses you can choose within these areas of civil engineering.

Instructional laboratories in structural behavior, hydraulics, surveying, and civil engineering materials are offered in the sophomore and junior years. Further study includes 30 credits of technical electives allowing students to tailor their studies to their sub-discipline of choice. Sub-disciplines include architectural, construction, environmental, geomatics, geotechnical, hydraulics, materials, structures, and transportation.

Senior design projects consist of real-world applications in theoretical role play. Recent projects have included designing possible layouts for the proposed US-231 bypass that will run around the perimeter of campus to connect its north and south ends. Another project explored adding box seats to our basketball arena by raising the roof to make room. Students participate in these projects from site exploration, to budget management, to mock designs.

Faculty

https://engineering.purdue.edu/CE/People/Faculty

Contact Information

Lyles School of Civil Engineering
Delon and Elizabeth Hampton Hall of Civil Engineering
550 Stadium Mall Drive
West Lafayette, IN 47907-2051
CE Main Office: (765) 494-2166
CE Main Office Fax: (765) 494-0395

Graduate Information

For Graduate Information please see Civil Engineering Graduate Program Information.

Baccalaureate

Civil Engineering, BSCE

About the Program

Civil engineers design and construct the world's infrastructure: buildings and bridges; tunnels, dams, and levees; harbors and canals; water-supply and waste-disposal systems; airports, highways, and railroads; pipelines and power lines.

As a Civil Engineering undergraduate student you have many opportunities to plan your curriculum and even more opportunities to build your future in civil engineering!

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Summary of Program Requirements

The Summary of Program Requirements for Civil Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

Code-BSCE
132 Credits for Graduation

Civil Engineering Major Courses

(https://engineering.purdue.edu/CE/Academics/Undergraduate/PlanStudy)

Required CE Courses [Grade of C- or better required] (61 credits)

- COM 11400 - Fundamentals Of Speech Communication
- CGT 16400 - Graphics For Civil Engineering And Construction
- MA 26100 - Multivariate Calculus
- CE 20300 - Principles And Practice Of Geomatics
- CE 29202 - Contemporary Issues In Civil Engineering
- PHYS 24100 - Electricity And Optics
- CE 29700 - Basic Mechanics I (Statics)
- MA 26500 - Linear Algebra
- CE 23100 - Engineering Materials I
- CE 27000 - Introductory Structural Mechanics
- CE 29800 - Basic Mechanics II Dynamics
- MA 26600 - Ordinary Differential Equations
- CE 33100 - Engineering Materials II
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- STAT 51100 - Statistical Methods
- CE 39201 - Technical Communication In Civil Engineering
- CE 39800 - Introduction To Civil Engineering Systems Design
- Basic Science Selective - Credit Hours: 3.00
- ME 20000 - Thermodynamics I

- CE 49800 - Civil Engineering Design Project

CE Technical Electives (30 credits)

https://engineering.purdue.edu/CE/Academics/Undergraduate/Current/Technical-Elective-Policy-6-28-12.pdf

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- Technical Elective IV - Credit Hours: 3.00
- Technical Elective V - Credit Hours: 3.00
- Technical Elective VI - Credit Hours: 3.00
- Technical Elective VII - Credit Hours: 3.00
- Technical Elective VIII - Credit Hours: 3.00
- Technical Elective IX - Credit Hours: 3.00
- Technical Elective X - Credit Hours: 3.00

Other Departmental / Program Course Requirements (27-30 credits)

- MA 16500 - Analytic Geometry And Calculus I (satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies FYE requirement)

- CHM 11500 - General Chemistry (satisfies FYE requirement)
- PHYS 17200 - Modern Mechanics (satisfies FYE requirement)
- ENGL 10600 - First-Year Composition (satisfies FYE requirement)
- ENGR 13100 - Transforming Ideas To Innovation I (satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (satisfies FYE requirement)

- CS 15900 - Programming Applications For Engineers (satisfies FYE Science Selective requirement) or
- CHM 11600 - General Chemistry (satisfies FYE Science Selective requirement)

General Education Electives (15 credits)

(plus 1 cr from CE 29202 and 2 cr CE 39201)

https://engineering.purdue.edu/CE/Academics/Undergraduate/Current/General-Education-Electives_3-8-13.pdf

- General Education Elective I - Credit Hours: 3.00
- General Education Elective II - Credit Hours: 3.00
- General Education Elective III - Credit Hours: 3.00
- General Education Elective IV - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00

University Foundational Core Requirements

- Human Cultures - Humanities - Gen Ed I
- Human Cultures - Behavioral/Social Science - Gen Ed II
- Information Literacy - ENGL 10600 - First-Year Composition
- Science Selective - CHM 11500 - General Chemistry
- Science Selective - PHYS 17200 - Modern Mechanics
- Science, Technology & Society Selective - Basic Science Select
- Written Communication - ENGL 10600 - First-Year Composition
- Oral Communication - COM 11400 - Fundamentals Of Speech Communication
- Quantitative Reasoning - MA 16500 - Analytic Geometry And Calculus I

Program Requirements

https://engineering.purdue.edu/CE/Academics/Undergraduate/PlanStudy

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition
- ENGR 13100 - Transforming Ideas To Innovation I
- General Education Elective I - Credit Hours: 3.00

17 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics
- FYE Science Selective - Credit Hours: 3.00
- ENGR 13200 - Transforming Ideas To Innovation II
- COM 11400 - Fundamentals Of Speech Communication

16 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics
- CE 29700 - Basic Mechanics I (Statics)
- CE 20300 - Principles And Practice Of Geomatics
- CGT 16400 - Graphics For Civil Engineering And Construction
- CE 29202 - Contemporary Issues In Civil Engineering

18 Credits

Spring 2nd Year

- MA 26500 - Linear Algebra
- CE 23100 - Engineering Materials I
- CE 27000 - Introductory Structural Mechanics
- CE 29800 - Basic Mechanics II Dynamics
- General Education Elective II - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- MA 26600 - Ordinary Differential Equations
- CE 33100 - Engineering Materials II
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- Technical Elective I (Breadth) - Credit Hours: 3.00
- General Education Elective III - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- STAT 51100 - Statistical Methods
- CE 39800 - Introduction To Civil Engineering Systems Design
- CE 39201 - Technical Communication In Civil Engineering
- Technical Elective II (Breadth) - Credit Hours: 3.00
- Technical Elective III (Design) - Credit Hours: 3.00
- Basic Science Selective - Credit Hours: 3.00

17 Credits

Fall 4th Year

- ME 20000 - Thermodynamics I
- Technical Elective IV (Breadth) - Credit Hours: 3.00
- Technical Elective V (Design) - Credit Hours: 3.00
- Technical Elective VI - Credit Hours: 3.00
- Technical Elective VII - Credit Hours: 3.00
- General Education Elective IV - Credit Hours: 3.00

18 Credits

Spring 4th Year

- CE 49800 - Civil Engineering Design Project
- Technical Elective VIII (Breadth) - Credit Hours: 3.00
- Technical Elective IX (Design) - Credit Hours: 3.00
- Technical Elective X - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00

15 Credits

Note

132 semester credits required for Bachelor of Science in Civil Engineering degree.

Students must have a graduation index of 2.0 and a CE index (CE courses only) of 2.0.

Degree Requirements

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

MyPurduePlan is a 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

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

Minor

Architectural Engineering Minor

A Minor in Architectural Engineering is available to all students in the College of Engineering except students in the School of Civil Engineering. The Minor is focused on high performance buildings and will be granted on the completion of the following 18 crs (6 courses).

Required (4) courses (12 crs)

- CE 31100 - Architectural Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 51300 - Lighting In Buildings

Elective (2) courses (6 crs) from the following list

- CE 37100 - Structural Analysis I
- CE 47900 - Design Of Building Components And Systems
- CE 51501 - Building Energy Audits
- CE 59700 - Civil Engineering Projects
- ME 51800 - Analysis Of Thermal Systems
- ME 52200 - Indoor Environmental Analysis And Design
- ME 59700 - Advanced Mechanical Engineering Projects I

Note

Provided that the 18 credit hrs are successfully completed with a grade of "C" or better in all of the courses, then an Architectural Engineering Minor will be awarded. A grade of "C- or lower" in any of the above courses is not adequate to fulfill the Minor.

All of the above prescribed minor courses must be taken at the Purdue West Lafayette campus.

Land Surveying Minor

The Land Surveying (LS) minor is available to any student at Purdue who has met the co- and/or pre-requisites for courses in the LS course sequence. The LS Minor consists of 7 courses (21 credits).

When the minor is combined with the BSCE degree program, the minor will likely add 1 to 4 courses to the student's program of study. Working with an LS advisor during the junior and senior undergraduate years will minimize the impact on the student's time to graduation.

Once a student has proposed a sequence of courses for the LS minor, the proposal will be submitted to the CE Undergraduate Committee for approval. When the student has successfully completed the approved sequence of courses (earning at least a 2.0 grade point average over the entire sequence), the student will be granted a minor in LS.

The requirements for the LS minor program are outlined as follows:

Core

Required courses

- CE 20300 - Principles And Practice Of Geomatics
- CE 30300 - Engineering Surveying
- CE 3xx00 - Cadastral Surveying*

Elective

Min 2 of following courses

- CE 30600 - Analysis Of Survey Observations
- CE 40800 - Geographic Information Systems In Engineering
- CE 3xx00 - Imaging Applications in Civil Engineering*

- CE 49700 - Civil Engineering Projects (Boundary Law Research) - Credit Hours: 3.00
- CE 5xx00 - Adjustment of Geospatial Observations*
- CE 5xx00 - Introduction to Geodesy and Map Projections*

Planning and Design

Min 2 of following courses

- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 35500 - Engineering Environmental Sustainability
- CE 36100 - Transportation Engineering
- CE 44000 - Urban Hydraulics
- CE 51200 - The Comprehensive Urban Planning Process
- CE 56200 - Geometric Design Of Highways
- CEM 48500 - Legal Aspects Of Construction Engineering
- MGMT 45500 - Legal Background For Business I

Note

* These courses are currently offered under the 497 or 597 special study number. Course numbers will be assigned when the course proposals are approved.

Division of Construction Engineering and Management

About Construction Engineering and Management

The Division of Construction Engineering and Management (CEM) offers a degree in Construction Engineering (BSCNE) which is tailored to prepare graduates for professional work in the construction industry. The Construction Engineering curriculum includes about 80 percent engineering courses and 20 percent management courses focused on the knowledge necessary for construction careers.

Construction engineers design and execute processes for building and maintaining the infrastructure of our world. The tools of the trade for today's successful construction engineer include the following: strong math, science, and computer skills; creativity; an aptitude for applying science and engineering methods to solve problems; a love of building structures such as bridges, airports, buildings, dams, and highways; an interest in working indoors and outdoors; initiative and a strong work ethic; the ability to collaborate with diverse people; good communications skills; and a desire to learn in a constantly changing environment. Students in the Construction Engineering program have the opportunity to develop additional expertise in mechanical, electrical, and other areas of engineering through minors in these fields. Construction Engineering students complete three 12-week paid internships, usually during the summer and away from home. They work as paid employees of construction contractors and construction managers and perform increasingly responsible duties in field operations, office operations, and project management

For over 18 years in a row BSCNE graduates have been hired at a 100-percent rate upon graduation by some of the 100 top U.S. construction firms.

Many construction engineers move into senior management, attaining executive positions and even ownership in a construction firm. These professionals have a passion for building structures and collaborating with a wide range of people, as well as a desire to learn in a constantly changing world.

Faculty

https://engineering.purdue.edu/CEM/People

Contact Information

Division of Construction Engineering and Management
Purdue University
550 Stadium Mall Drive, CIVL 1227
West Lafayette, IN 47907-2051
E-mail: CEM Information
Phone: +1 (765) 494 2240
FAX: +1 (765) 494 0644

Baccalaureate

Construction Engineering and Management, BSCNE

About the Program

The Division of Construction Engineering and Management (CEM) offers a degree in Construction Engineering (BSCNE) which is tailored to prepare graduates for professional work in the construction industry. The Construction Engineering curriculum includes about 80 percent engineering courses and 20 percent management courses focused on the knowledge necessary for construction careers.

Construction engineers design and execute processes for building and maintaining the infrastructure of our world. The tools of the trade for today's successful construction engineer include the following: strong math, science, and computer skills; creativity; an aptitude for applying science and engineering methods to solve problems; a love of building structures such as bridges, airports, buildings, dams, and highways; an interest in working indoors and outdoors; initiative and a strong work ethic; the ability to collaborate with diverse people; good communications skills; and a desire to learn in a constantly changing environment. Students in the Construction Engineering program have the opportunity to develop additional expertise in mechanical, electrical, and other areas of engineering through minors in these fields. Construction Engineering students complete three 12-week paid internships, usually during the summer and away from home. They work as paid employees of construction contractors and construction managers and perform increasingly responsible duties in field operations, office operations, and project management

For over 18 years in a row BSCNE graduates have been hired at a 100-percent rate upon graduation by some of the 100 top U.S. construction firms.

Many construction engineers move into senior management, attaining executive positions and even ownership in a construction firm. These professionals have a passion for building structures and collaborating with a wide range of people, as well as a desire to learn in a constantly changing world.

Summary of Program Requirements

The Summary of Program Requirements for Construction Engineering and Manangement is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below,

complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

Code-BSCNE
130 Credits for Graduation

Construction Engineering Major Courses

Required CEM Courses (80 credits)

- COM 11400 - Fundamentals Of Speech Communication
- CE 20300 - Principles And Practice Of Geomatics
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- CGT 16400 - Graphics For Civil Engineering And Construction
- CE 27000 - Introductory Structural Mechanics
- CE 23100 - Engineering Materials I
- PHYS 24100 - Electricity And Optics
- MA 26600 - Ordinary Differential Equations
- STAT 51100 - Statistical Methods
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- ME 20000 - Thermodynamics I
- CE 34000 - Hydraulics
- CE 37100 - Structural Analysis I
- CEM 48500 - Legal Aspects Of Construction Engineering
- CEM 42500 - Construction Practice Project
- CE 52100 - Construction Business Management
- CE 29700 - Basic Mechanics I (Statics)
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MGMT 20000 - Introductory Accounting
- CEM 32100 - Construction Engineering Materials Lab
- CE 29800 - Basic Mechanics II Dynamics
- CEM 30200 - Practical Applications For Construction Engineering
- CEM 32400 - Human Resource Management In Construction
- CE 38300 - Geotechnical Engineering I
- CE 34300 - Elementary Hydraulics Laboratory
- CE 47300 - Reinforced Concrete Design
- CEM 19100 - Construction Internship I
- CEM 29100 - Construction Internship II
- CEM 39100 - Construction Internship III

CEM technical Electives - (6 credits)

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00

Other Departmental /Program Course Requirements (26-28 credits)

- MA 16500 - Analytic Geometry And Calculus I (satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies FYE requirement)

- CHM 11500 - General Chemistry (satisfies FYE requirement)
- PHYS 17200 - Modern Mechanics (satisfies FYE requirement)
- ENGL 10800 - Accelerated First-Year Composition (satisfies FYE requirement)
- ENGR 13100 - Transforming Ideas To Innovation I (satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (satisfies FYE requirement)
- Science Selective (satisfies FYE requirement) - Credit Hours: 3.00

General Education Electives (18 credits)

- General Education Elective I - Credit Hours: 3.00
- General Education Elective II - Credit Hours: 3.00
- General Education Elective III - Credit Hours: 3.00
- General Education Elective IV - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00
- General Education Elective VI (CEM 28000 & CEM 38000) - Credit Hours: 3.00

University Foundational Core Requirements

(http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- Human Cultures - Humanities (H) - Gen Ed I
- Human Cultures - Behavioral/Social Science (BSS) - Gen Ed II
- Information Literacy (IL) - ENGL 10800 - Accelerated First-Year Composition
- Science (S) - CHM 11500 - General Chemistry
- Science, Technology & Society (STS) - Gen Ed III
- Written Communication (WC) - ENGL 10800 - Accelerated First-Year Composition
- Oral Communication (OC) - COM 11400 - Fundamentals Of Speech Communication
- Quantitative Reasoning (QR) - MA 16500 - Analytic Geometry And Calculus I

Program Requirements

https://engineering.purdue.edu/CEM/Academics

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10800 - Accelerated First-Year Composition
- ENGR 13100 - Transforming Ideas To Innovation I

13 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics
- Science Selective - Credit Hours: 3.00
- ENGR 13200 - Transforming Ideas To Innovation II
- COM 11400 - Fundamentals Of Speech Communication
- Summer: CEM 19100 - Construction Internship I - Summer Internship I

16 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 29700 - Basic Mechanics I (Statics)
- CE 20300 - Principles And Practice Of Geomatics
- CGT 16400 - Graphics For Civil Engineering And Construction

16 Credits

Spring 2nd Year

- MA 26600 - Ordinary Differential Equations
- CE 23100 - Engineering Materials I
- CE 27000 - Introductory Structural Mechanics
- CEM 28000 - Construction Engineering Professional Development I
- MGMT 20000 - Introductory Accounting
- PHYS 24100 - Electricity And Optics

- Summer: CEM 29100 - Construction Internship II Summer Internship II and
- General Education Elective I - Credit Hours: 3.00

18 (+3) Credits

Fall 3rd Year

- MA 26500 - Linear Algebra

- CE 29800 - Basic Mechanics II Dynamics
- CE 38000
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- STAT 51100 - Statistical Methods

14 Credits

Spring 3rd Year

- Technical Elective I - Credit Hours: 3.00
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CEM 30200 - Practical Applications For Construction Engineering

- Summer: CEM 39100 - Construction Internship III - Summer Internship III and
- General Education Elective II - Credit Hours: 3.00

16 (+3) Credits

Fall 4th Year

- Technical Elective II - Credit Hours: 3.00
- CE 47300 - Reinforced Concrete Design
- CEM 42500 - Construction Practice Project
- CEM 32400 - Human Resource Management In Construction
- General Education Elective III - Credit Hours: 3.00

16 Credits

Spring 4th Year

- CE 52100 - Construction Business Management or
- MGMT 30400 - Introduction To Financial Management

- ME 20000 - Thermodynamics I
- CEM 48500 - Legal Aspects Of Construction Engineering
- General Education Elective IV - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00

15 Credits

Note

130 semester credits required for Bachelor of Science in Construction Engineering degree.

Students must have a graduation index of 2.0.

Degree Requirements

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

MyPurduePlan is a 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.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

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

School of Electrical and Computer Engineering

About Electrical and Computer Engineering

Electrical and Computer engineering encompasses all areas of research, development, design, and operation of electrical and electronic systems and their components, including software. Emphasis in such varied areas as bioengineering, circuit theory, communication sciences, computers and automata, control systems, electromagnetic fields, energy sources and systems, and materials and electronic devices is available. Two degree programs are offered by the School: Bachelor of Science in Electrical Engineering (BSEE) and Bachelor of Science in Computer Engineering (BSCmpE).

Engineers in both fields must have a strong background in mathematics and physics, a broad base in the humanities, and a command of the English language in order to provide the scope of knowledge essential for optimum professional growth. The curriculum offered by the School of Electrical and Computer Engineering meets these objectives.

Graduates from the School of Electrical and Computer Engineering are sought after by all major industries. Electrical engineers hold many unusual and challenging positions in the aerospace, chemical, nuclear, automotive, medical, metallurgical, textile, railway, petroleum, and other basically non-electrical industries, as well as in computers, electronics, communications, power, and other electrical industries. Their professional roles span industrial activity, research, development, design, production, marketing, operation, field testing, and maintenance of many types of equipment for government, industry, farm, and home.

Two degree programs are offered by the school:

Electrical Engineering encompasses the development, design, research, and operation of electrical and electronic systems and components. Disciplines include VLSI and circuit design, communication and signal processing, computer engineering, automatic control, fields and optics, energy sources and systems, and microelectronics and nanotechnology.

Computer Engineering is a specialization within electrical and computer engineering offering an in-depth education in both hardware and software aspects of modern computer systems.

Electrical and Computer Engineering provides students with a versatile education that will prove valuable looking toward a professional future. Along with problem-solving and design skills, students develop a strong foundation in math, science, and core electrical/computer engineering fundamentals. This skillset prepares them for research and development positions in industry, management, sales, teaching, medical school, and law school.

At Birck Nanotechnology Center, engineers and scientists conduct research in emerging fields where new materials and tiny structures are built atom by atom or molecule by molecule.

Faculty

https://engineering.purdue.edu/ECE/People/Faculty

Contact Information

Purdue University
School of Electrical and Computer Engineering
Electrical Engineering Building
465 Northwestern Ave.
West Lafayette, Indiana 47907-2035
ph (765) 494-3540

Graduate Information

For Graduate Information please see Electrical and Computer Engineering Graduate Program Information.

Baccalaureate

Computer Engineering, BSCMPE

About the Program

Electrical and Computer Engineering

Electrical and Computer engineering encompasses all areas of research, development, design, and operation of electrical and electronic systems and their components, including software. Emphasis in such varied areas as bioengineering, circuit theory, communication sciences, computers and automata, control systems, electromagnetic fields, energy sources and systems, and materials and electronic devices is available. Two degree programs are offered by the School: Bachelor of Science in Electrical Engineering (BSEE) and Bachelor of Science in Computer Engineering (BSCmpE).

Engineers in both programs must have a strong background in mathematics and physics, a broad base in the humanities, and a command of the English language to provide the breadth essential for optimum professional growth. The curriculum offered by the School of Electrical and Computer Engineering meets these objectives.

Graduates from the School of Electrical and Computer Engineering are sought by all major industries. Electrical engineers hold many unusual and challenging positions in the aerospace, chemical, nuclear, automotive, medical, metallurgical, textile, railway, petroleum, and other basically non-electrical industries, as well as in computers, electronics, communications, power, and other electrical industries. Their activities span industrial activity, research, development, design, production, marketing, operation, field test, and maintenance of many types of equipment for government, industry, farm, and home.

Two degree programs are offered by the school:

Electrical Engineering encompasses the development, design, research, and operation of electrical and electronic systems and components. Disciplines include VLSI and circuit design, communication and signal processing, computer engineering, automatic control, fields and optics, energy sources and systems, and microelectronics and nanotechnology.

Computer Engineering is a specialization within electrical and computer engineering offering an in-depth education in both hardware and software aspects of modern computer systems.

Students develop a strong foundation in math, science, and core electrical/computer engineering fundamentals, plus problem-solving and design skills that prepare them for research and development positions in industry, management, sales, teaching, medical school, and law school.

At Birck Nanotechnology Center engineers and scientists conduct research in emerging fields where new materials and tiny structures are built atom by atom, or molecule by molecule.

Summary of Program Requirements

The Summary of Program Requirements for Computer Engineering (2015-16) is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

125 Credits
Students must earn an overall graduation GPA of at least 2.000

Major Courses (49 credits)

(https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/bscmpe.pdf)

(An overall 2.000 cumulative GPA or better in these courses is required)

Required ECE Courses (47 cr.)

- ECE 20000 - Electrical And Computer Engineering Seminar
- ECE 20100 - Linear Circuit Analysis I
- ECE 20200 - Linear Circuit Analysis II
- ECE 20700 - Electronic Measurement Techniques
- ECE 20800 - Electronic Devices And Design Laboratory

- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design

- ECE 46800 - Introduction To Compilers And Translation Engineering or
- ECE 46900 - Operating Systems Engineering

- ECE 47700 - Digital Systems Senior Project
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 33700 - ASIC Design Laboratory
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36400 - Software Engineering Tools Laboratory
- ECE 36800 - Data Structures
- ECE 40000 - Professional Development And Career Guidance
- ECE 43700 - Computer Design And Prototyping

Computer Engineering Selective (2 cr.)

(https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/CourseInfo/coursesBSCmpEElectives)

Other Department/Program Course Requirements (70 credits)

General Engineering Requirement (10 cr.)

- ENGR 13100 - Transforming Ideas To Innovation I
- ENGR 13200 - Transforming Ideas To Innovation II
- CS 15900 - Programming Applications For Engineers
- Engineering Breadth Selective (https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/eng.pdf) - Credit Hours: 3.00

Mathematics Requirement (21 cr.)

- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)
- MA 16600 - Analytic Geometry And Calculus II
- MA 26100 - Multivariate Calculus
- MA 26600 - Ordinary Differential Equations
- MA 26500 - Linear Algebra
- ECE 36900 - Discrete Mathematics For Computer Engineering

Science Requirement (15 cr.)

- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)
- PHYS 27200 - Electric And Magnetic Interactions

- ECE Science Selective (https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/sci.pdf) - Credit Hours: 3.00

ECE General Education Requirement (24 cr.)

Foundational Core

(http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- ENGL 10600 - First-Year Composition (satisfies Information Literacy and Written Communication Selectives for core)
- (satisfies Oral Communication for core) - Credit Hours: 3.00
- (satisfies Human Cultures: Humanities for core) - Credit Hours: 3.00
- (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- (satisfies Science, Technology & Society Selective for core) - Credit Hours: 3.00

ECE General Education Electives

(https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/CourseInfo/coursesGEE#LIST)

Complementary Electives (6 credits)

University Core Requirements

(included above) (http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology & Society Selective
- Written Communication
- Oral Communication
- Quantitative Reasoning

Program Requirements

https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/BSCMPE%20Sample%20Plan.pdf

Fall 1st Year

- ENGR 13100 - Transforming Ideas To Innovation I **
- MA 16500 - Analytic Geometry And Calculus I *
- CHM 11500 - General Chemistry *
- COM 11400 - Fundamentals Of Speech Communication *

- CS 15900 - Programming Applications For Engineers **

16 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II **
- MA 16600 - Analytic Geometry And Calculus II **
- ENGL 10600 - First-Year Composition *
- PHYS 17200 - Modern Mechanics *
- Foundational GenEd* - Credit Hours: 3.00

17 Credits

Fall 2nd Year

- ECE 20000 - Electrical And Computer Engineering Seminar
- ECE 20100 - Linear Circuit Analysis I
- ECE 20700 - Electronic Measurement Techniques
- ECE 26400 - Advanced C Programming
- MA 26100 - Multivariate Calculus **
- PHYS 27200 - Electric And Magnetic Interactions **

15 Credits

Spring 2nd Year

- ECE 20200 - Linear Circuit Analysis II
- ECE 27000 - Introduction To Digital System Design
- ECE 36800 - Data Structures
- MA 26600 - Ordinary Differential Equations **
- ECE Scie. Selective- Credit Hours: 4.00 *

17 Credits

Fall 3rd Year

- ECE 20800 - Electronic Devices And Design Laboratory
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 30100 - Signals And Systems
- ECE 36200 - Microprocessor Systems And Interfacing
- Foundational GenEd - Credit Hours: 3.00 *
- ECE 40000 - Professional Development And Career Guidance

15 Credits

Spring 3rd Year

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 33700 - ASIC Design Laboratory
- ECE 36400 - Software Engineering Tools Laboratory
- ECE 36900 - Discrete Mathematics For Computer Engineering
- Foundational GenEd - Credit Hours: 3.00 *
- ECE GenEd Elective - Credit Hours: 3.00 **

15 Credits

Fall 4th Year

- ECE 43700 - Computer Design And Prototyping or
- ECE 46800 - Introduction To Compilers And Translation Engineering

- ECE 47700 - Digital Systems Senior Project
- MA 26500 - Linear Algebra **
- ECE GenEd Elective - Credit Hours: 3.00 **

14 Credits

Spring 4th Year

- Computer Engr. Elective - Credit Hours: 2.00

- ECE 43700 - Computer Design And Prototyping or
- ECE 46900 - Operating Systems Engineering

- Engr. Breadth Ele. - Credit Hours: 3.00 **
- ECE GenEd Elective - Credit Hours: 3.00 **
- Complimentary Ele. - Credit Hours: 4.00 **

16 Credits

Note

*Satisfies a University Core Requirement

**Satisfies a Non-departmental Major Course Requirement

125 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

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

Electrical Engineering, BSEE

About the Program

Electrical and Computer Engineering

Electrical and Computer engineering encompasses all areas of research, development, design, and operation of electrical and electronic systems and their components, including software. Emphasis in such varied areas as bioengineering, circuit theory, communication sciences, computers and automata, control systems, electromagnetic fields, energy sources and systems, and materials and electronic devices is available. Two degree programs are offered by the School: Bachelor of Science in Electrical Engineering (BSEE) and Bachelor of Science in Computer Engineering (BSCmpE).

Engineers in both programs must have a strong background in mathematics and physics, a broad base in the humanities, and a command of the English language to provide the breadth essential for optimum professional growth. The curriculum offered by the School of Electrical and Computer Engineering meets these objectives.

Graduates from the School of Electrical and Computer Engineering are sought by all major industries. Electrical engineers hold many unusual and challenging positions in the aerospace, chemical, nuclear, automotive, medical, metallurgical, textile, railway, petroleum, and other basically non-electrical industries, as well as in computers, electronics, communications, power, and other electrical industries. Their activities span industrial activity, research, development, design, production, marketing, operation, field test, and maintenance of many types of equipment for government, industry, farm, and home.

Two degree programs are offered by the school:

Electrical Engineering encompasses the development, design, research, and operation of electrical and electronic systems and components. Disciplines include VLSI and circuit design, communication and signal processing, computer engineering, automatic control, fields and optics, energy sources and systems, and microelectronics and nanotechnology.

Computer Engineering is a specialization within electrical and computer engineering offering an in-depth education in both hardware and software aspects of modern computer systems.

Students develop a strong foundation in math, science, and core electrical/computer engineering fundamentals, plus problem-solving and design skills that prepare them for research and development positions in industry, management, sales, teaching, medical school, and law school.

At Birck Nanotechnology Center engineers and scientists conduct research in emerging fields where new materials and tiny structures are built atom by atom, or molecule by molecule.

Summary of Program Requirements

The Summary of Program Requirements for Electrical Engineering (2015-16) is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

124 Credits
Students must earn an overall graduation GPA of at least 2.000

Major Courses (47 credits)

(https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/bsee.pdf)

(An overall 2.000 cumulative GPA or better in these courses is required)

Required ECE Courses (28 cr.)

- ECE 20000 - Electrical And Computer Engineering Seminar
- ECE 20100 - Linear Circuit Analysis I
- ECE 20200 - Linear Circuit Analysis II
- ECE 20700 - Electronic Measurement Techniques
- ECE 20800 - Electronic Devices And Design Laboratory
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 31100 - Electric And Magnetic Fields
- ECE 40000 - Professional Development And Career Guidance
- ECE 40200 - Electrical Engineering Design Projects

Adv. EE Selectives - Select 3 of the following courses (9-11 cr.)

- ECE 30500 - Semiconductor Devices
- ECE 32100 - Electromechanical Motion Devices
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 38200 - Feedback System Analysis And Design

- ECE 43800 - Digital Signal Processing With Applications or
- ECE 44000 - Transmission Of Information

Other Electrical Engineering Course Requirements (7-10 cr.)

(Must include 3 upper level labs - fewer if chosen Adv EE Selectives include ECE 36200 and/or ECE 43800/ECE 44000)

Other Department/Program Course Requirements (67 credits)

General Engineering Requirement (10 cr.)

- ENGR 13100 - Transforming Ideas To Innovation I
- ENGR 13200 - Transforming Ideas To Innovation II
- CS 15900 - Programming Applications For Engineers
- Engineering Breadth Selective (https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/eng.pdf) - Credit Hours: 3.00

Mathematics Requirement (18 cr.)

- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)
- MA 16600 - Analytic Geometry And Calculus II
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations

Science Requirement (15 cr.)

- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)
- PHYS 27200 - Electric And Magnetic Interactions
- ECE Science Selective (https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/pdf/sci.pdf) - Credit Hours: 3.00

ECE General Education Requirement (24 cr.)

Foundational Core

(http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- ENGL 10600 - First-Year Composition (satisfies Information Literacy and Written Communication Selectives for core)
- (satisfies Oral Communication for core) - Credit Hours: 3.00
- (satisfies Human Cultures: Humanities for core) - Credit Hours: 3.00
- (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- (satisfies Science, Technology & Society Selective for core) - Credit Hours: 3.00

ECE General Education Electives

(https://engineering.purdue.edu/ECE/Academics/Undergraduates/UGO/CourseInfo/coursesGEE#LIST)

Electives (10 credits)

University Core Requirements

(included above) (http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology & Society Selective
- Written Communication
- Oral Communication
- Quantitative Reasoning

Program Requirements

Fall 1st Year

- ENGR 13100 - Transforming Ideas To Innovation I **
- MA 16500 - Analytic Geometry And Calculus I *
- CHM 11500 - General Chemistry *
- COM 11400 - Fundamentals Of Speech Communication *
- CS 15900 - Programming Applications For Engineers **

16 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II **
- MA 16600 - Analytic Geometry And Calculus II **
- ENGL 10600 - First-Year Composition *
- PHYS 17200 - Modern Mechanics *
- Foundational GenEd - Credit Hours: 3.00*

17 Credits

Fall 2nd Year

- ECE 20000 - Electrical And Computer Engineering Seminar
- ECE 20100 - Linear Circuit Analysis I
- ECE 20700 - Electronic Measurement Techniques
- MA 26100 - Multivariate Calculus **
- PHYS 27200 - Electric And Magnetic Interactions **
- Foundational GenEd - Credit Hours: 3.00 *

15 Credits

Spring 2nd Year

- ECE 20200 - Linear Circuit Analysis II
- ECE 20800 - Electronic Devices And Design Laboratory
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE Sci Selective* - Creidt Hours:4.00*
- MA 26600 - Ordinary Differential Equations **
- Foundational GenEd - Credit Hours: 3.00 *

17 Credits

Fall 3rd Year

- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- Adv. EE Selective - Credit Hours: 3.00
- ECE Elective - Credit Hour: 1.00
- Complimentary Ele - Credit Hours: 2.00 **
- ECE 40000 - Professional Development And Career Guidance

14 Credits

Spring 3rd Year

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 31100 - Electric And Magnetic Fields
- Adv. EE Selective - Credit Hours: 3.00
- ECE Elective (lab) - Credit Hour: 1.00
- MA 26500 - Linear Algebra **
- ECE GenEd Elective - Credit Hours: 3.00 **

16 Credits

Fall 4th Year

- ECE 40200 - Electrical Engineering Design Projects
- ECE Elective - Credit Hours: 3.00
- ECE GenEd Elective - Credit Hours: 3.00 **
- Complimentary Ele. - Credit Hours: 3.00 **
- Engr. Breadth Elective - Credit Hours: 3.00**

15 Credits

Spring 4th Year

- Adv. EE Selective w/lab - Credit Hours: 4.00
- ECE Elective w/lab - Credit Hours: 4.00
- ECE GenEd Elective - Credit Hours: 3.00 **
- Complimentary Ele. - Credit Hours: 3.00 **

14 Credits

Note

*Satisfies a University Core Requirement

**Satisfies a Non-departmental Major Course Requirement

124 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

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

Minor

Electrical and Computer Engineering Minor

Required Courses (13 credits)

- ECE 20100 - Linear Circuit Analysis I
- ECE 20200 - Linear Circuit Analysis II
- ECE 25500 - Introduction To Electronic Analysis And Design

- ECE 27000 - Introduction To Digital System Design

Elective Course(s) (4 credits)

Choose one of the following options:

- ECE 30100 - Signals And Systems and
- ECE 20700 - Electronic Measurement Techniques

- ECE 30500 - Semiconductor Devices and
- ECE 20700 - Electronic Measurement Techniques

- ECE 32100 - Electromechanical Motion Devices and
- ECE 20700 - Electronic Measurement Techniques

- ECE 36200 - Microprocessor Systems And Interfacing

School of Engineering Education

The School of Engineering Education

Interdisciplinary Engineering offers two distinct degree options: Interdisciplinary Engineering Studies (IDES), and Multidisciplinary Engineering (MDE). Each degree is unique, in that they serving student populations with different career interests. In particular, the IDES degree is often referred to as a "pre-professional school" program, which offers a bachelor of science degree and is not ABET accredited. Alternatively, the MDE degree is an ABET accredited program, conferring a bachelor of science in engineering degree. Further details of each program follow below.

The **Multidisciplinary Engineering Program's** mission, goals, objectives and outcomes are designed to prepare graduates to practice engineering. Typically, a plan of study is developed around a focused concentration. Develop your own individual plan of study or select one of these established, ABET-approved concentrations:

- Acoustical Engineering
- Engineering Management
- General Engineering
- Visual Design Engineering
- Lighting Engineering
- Nano-Engineering

The **Interdisciplinary Engineering Studies Program** is for students who want an engineering education but do not plan to practice engineering. Develop your own individual plan of study or select one of these established concentrations:

- Technical Communications Engineering Studies
- Engineering Mathematics Studies
- Visual Design Engineering Studies
- Pre-Chiropractic Engineering Studies
- Pre-Physical Therapy Engineering Studies
- Pre-Medical Engineering Studies

- Pre-Optometry Engineering Studies
- Pre-Law Engineering Studies
- Pre-Veterinary Medicine Engineering Studies
- Supervisory Engineering Studies
- Computer Graphics Engineering Studies

Detailed information on enrollment and graduation statistics for the MDE program, as well as MDE program accreditation with ABET is available for review.

Students must complete the requirements of the First-Year Engineering Program and take additional engineering courses, but may also take several courses from other schools at Purdue. Students will graduate with either a Bachelor of Science in Engineering (BSE) or a Bachelor of Science (BS) degree and may advance to graduate school or pursue a career in industry.

Features of these undergraduate programs include:

- Flexible plan of study that can be tailored to include its own title and selection of courses
- Limited enrollment (fewer than 100 total students), so the program remains counseling-intensive
- Bachelor of Science in Engineering (BSE) or Bachelor of Science (BS) degree
- Frequently Asked Questions
- Plans of Study
- Requirements
- Student Awards

Questions? Contact us by email at ide@ecn.purdue.edu or by phone at (765) 494-7422. You may also make an appointment with the MDE/IDE Advisor, by clicking: Chris Pekny

Faculty

https://engineering.purdue.edu/ENE/People/Faculty

Contact Information

School of Engineering Education
Purdue University
Neil Armstrong Hall of Engineering, Room 1300
701 W. Stadium Avenue
West Lafayette, IN 47907
e-mail: engr-info@purdue.edu
phone: (765) 494-9713
fax: (765) 494-5819

Graduate Information

For Graduate Information please see Engineering Education Graduate Program Information.

Baccalaureate

Interdisciplinary Engineering Studies (BS only)

About the Program

Interdisciplinary engineering studies (IDES) is for students who want an engineering education but do not plan to practice engineering. The program offers considerable flexibility and permits you to develop an individual plan of study to meet educational goals that require working at the interface between engineering and other disciplines. Established options in the program include pre-medical engineering studies and theater engineering studies. IDES is not an ABET accredited program plan of study.

Link to https://engineering.purdue.edu/ENE/Academics/Undergrad

Summary of Program Requirements

The Summary of Program Requirements for Interdisciplinary Engineering Studies is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

BS
IDE-BS
120 Credits for Graduation

Interdisciplinary Engineering Studies Major Courses

(45 credits of 200+ level engineering courses, of which at least 18 credits are 300+, and 6 credits 400+; MAX credits allowed in any one engineering discipline is 24)

(https://engineering.purdue.edu/ENE/Academics/Undergrad/IDE/general)

Required Engineering Core (18-26 credits)

- ECE 20100 - Linear Circuit Analysis I or equivalent

- ME 27000 - Basic Mechanics I and
- ME 27400 - Basic Mechanics II or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics) and
- CE 29800 - Basic Mechanics II Dynamics

- ME 30900 - Fluid Mechanics or
- CE 34000 - Hydraulics or

- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or equivalent

- ME 20000 - Thermodynamics I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 35000 or equivalent
- IE 34300 - Engineering Economics
- or IDE 48300 or equivalent
- EPCS 41100 - Senior Design Participation In EPICS and
- EPCS 41200 - Senior Design Participation In EPICS or
- IDE 48400 - Multidisciplinary Engineering Design Methodology and
- IDE 48500 - Multidisciplinary Engineering Design Project or equivalent (Must be taken at Purdue-West Lafayette)
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering (Must be taken at Purdue-West Lafayette)
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development (Must be taken at Purdue-West Lafayette)

Engineering Selectives - (8)

(https://engineering.purdue.edu/ENE/Academics/Undergrad/IDE/general)

- Use the link to find out which other courses are applicable.

Engineering Design

Must be approved by Dept. Eng. Education e.g.

- ABE 33000 - Design Of Machine Components
- AAE 25100 - Introduction To Aerospace Design
- CE 45600 - Water And Wastewater Treatment
- IE 38600 - Work Analysis And Design I

Hands-on (not computer) Lab

2 credits

- AAE 20401 - Aeromechanics II Laboratory
- AAE 33301 - Fluid Mechanics Laboratory
- ECE 20700 - Electronic Measurement Techniques
- CE 34300 - Elementary Hydraulics Laboratory
- ME 30900 - Fluid Mechanics

Enginering Courses in materials/strength of materials

- MSE 23000 - Structure And Properties Of Materials
- NUCL 27300 - Mechanics Of Materials
- CE 23100 - Engineering Materials I

Engineering Area Elective/Selective courses (15-20 credits)

(3-4) One of these beginning courses

- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- CE 20300 - Principles And Practice Of Geomatics
- NUCL 20000 - Introduction to Nuclear Engineering , etc.

(3) A follow up to core courses

- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- AAE 33400 - Aerodynamics
- AAE 37200 - Jet Propulsion Power Plants
- BME 30400 - Biomedical Transport Fundamentals
- CE 27000 - Introductory Structural Mechanics

(3) One additional advanced (300+) course

- ABE 30100 - Numerical And Computational Modeling In Biological Engineering
- ABE 30500 - Physical Properties Of Biological Materials
- ABE 32000 - Solid Modeling, Simulation, And Analysis
- ABE 32500 - Soil And Water Resource Engineering
- CE 30300 - Engineering Surveying , etc.

(5-9) Engineering Electives

Other Departmental /Program Course Requirements (47-54 credits)

- MA 16500 - Analytic Geometry And Calculus I (satisfies FYE requirement & quantitative reasoning for core) or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies FYE requirement & quantitative reasoning for core)

- MA 16600 - Analytic Geometry And Calculus II (satisfies FYE requirement & quantitative reasoning for core) or
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies FYE requirement & quantitative reasoning for core)

- CHM 11500 - General Chemistry (satisfies FYE requirement & science selective for core)
- ENGR 13100 - Transforming Ideas To Innovation I (satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (satisfies FYE requirement)
- ENGL 10600 - First-Year Composition (satisfies FYE requirement & general education requirement & written and info literacy for core)
- COM 11400 - Fundamentals Of Speech Communication (satisfies general education requirement & oral communication for core)
- PHYS 17200 - Modern Mechanics (satisfies FYE requirement & science selective for core)

- CS 15900 - Programming Applications For Engineers (satisfies FYE requirement) or

- CHM 11600 - General Chemistry (satisfies FYE requirement)

- MA 26100 - Multivariate Calculus (satisfies math requirement)

- MA 26200 - Linear Algebra And Differential Equations (satisfies math requirement) or
- MA 26500 - Linear Algebra (satisfies math requirement) and
- MA 26600 - Ordinary Differential Equations (satisfies math requirement)

(3/4) Choose one-sophomore science selective

- PHYS 24100 - Electricity And Optics
- PHYS 27200 - Electric And Magnetic Interactions
- BIOL 11000 - Fundamentals Of Biology I
- BIOL 23000 - Biology Of The Living Cell

(3) Statistics selective - counts as either engineering (above) or basic science & math

- IE 23000 - Probability And Statistics In Engineering I
- IE 33000 - Probability And Statistics In Engineering II
- IDE 36000 - Multidisciplinary Engineering Statistics
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- CHE 32000 - Statistical Modeling And Quality Enhancement
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- STAT 35000 - Introduction To Statistics
- STAT 51100 - Statistical Methods

Required course in area

- one additional 2-3 credit course
- CGT 11000 - Technical Graphics Communications
- CGT 16300 - Graphical Communication And Spatial Analysis
- CGT 16400 - Graphics For Civil Engineering And Construction

Area Electives (9-18 cr)

chosen to satisfy student's educational objectives.

General Education (24 credits)

NOTE: (includes ENGL 10600 and COM 11400 listed above)

- GE 1
- GE 2
- GE 3
- GE 4
- GE 5

- GE 6

University Core Requirements

- Human Cultures Humanities - GE 1
- Human Cultures Behavioral/Social Science - GE 2
- Information Literacy - ENGL 10600 - First-Year Composition
- Science #1 - CHM 11500 - General Chemistry
- Science #2 - PHYS 17200 - Modern Mechanics

  Science, Technology & Society - GE 3
- Written Communication - ENGL 10600 - First-Year Composition
- Oral Communication - COM 11400 - Fundamentals Of Speech Communication

- Quantitative Reasoning - MA 16500 - Analytic Geometry And Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I

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

IDES/MDE web pages and Advisor are knowledge sources for specific requirements and completion

Program Requirements

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition
- ENGR 13100 - Transforming Ideas To Innovation I

14 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics

- CS 15900 - Programming Applications For Engineers or
- CHM 11600 - General Chemistry

- ENGR 13200 - Transforming Ideas To Innovation II
- COM 11400 - Fundamentals Of Speech Communication

16/17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus

- PHYS 24100 - Electricity And Optics or
- Sci Sel - Credit Hours: 3.00 †

- ME 27000 - Basic Mechanics I †1
- ME 20000 - Thermodynamics I †2
- Area Elective - Credit Hours: 3.00 †3

16 Credits

Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations or
- ME 27400 - Basic Mechanics II †4
- ECE 20100 - Linear Circuit Analysis I
- ECE 20700 - Electronic Measurement Techniques
- CGT 16300 - Graphical Communication And Spatial Analysis
- Area Elective - Credit Hours: 2.00†3

15 Credits

Fall 3rd Year

- Engineering Class (intro) - Credit Hours: 3.00†5
- CE 34000 - Hydraulics †6
- CE 34300 - Elementary Hydraulics Laboratory
- MSE 23000 - Structure And Properties Of Materials †7
- General Education 1 (Core Outcome H) - Credit Hours: 3.00
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering

14 Credits

Spring 3rd Year

- IDE 36000 - Multidisciplinary Engineering Statistics †8
- Engineering Class (follow-up)†5 - Credit Hours: 1.00
- Engineering Class (design)†9 - Credit Hours: 2.00
- General Education 4 (300 level or non-intro) - Credit Hours: 3.00
- General Education 2 (Core Outcome BSS) - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- Engineering Class 400+ level (advanced) - Credit Hours: 3.00†5
- General Education 3 (Core Outcome STS) - Credit Hours: 3.00
- General Education 5 - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- IDE 48300
- IDE 48400
- IDE 48700

15 Credits

Spring 4th Year

- IDE 48500 - Multidisciplinary Engineering Design Project †10
- Engr elective - 300+ level - Credit Hours: 2.00
- Area Elective - Credit Hours 3.00
- Area MBS or other - Credit Hours: 3.00
- General Educaiton 6 (300+ level or non-intro) - Credit Hours: 3.00

15 Credits

Grand Total = 120 Credits

*Satisfies a University Core Requirement **Satisfies a Non-departmental Major Course Requirement. †Multiple options are available - the most common is listed. †1 statics options, †2 thermodynamics options †3 area electives are chosen with aid of adviser to advance the student's educational objectives †4 dynamics options †5 engineering selectives are chosen with aid of adviser to advance the student's educational objectives †6 fluids option †7 materials options †8 statistics options †9 design selective †10 Capstone design selective.

Note

120 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree.

*THE PLAN OF STUDY FROM 3RD SEMESTER ONWARDS SHOULD BE FILLED BY STUDENT AFTER CONSULTATION WITH ACADEMIC ADVISER.

Degree Requirements

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

Degree Works 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

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

Multidisciplinary Engineering, BSE

About the Program

Multidisciplinary engineering is for students who plan to practice engineering as a career but whose specific career goals cannot be accommodated within one of the traditional engineering fields. The program offers considerable flexibility and permits you to develop an individual plan of study to meet educational goals that require bringing together multiple engineering disciplines at an advanced level to solve societal challenges. Established plans of study in the program include acoustical engineering, engineering management, visual design engineering, and general engineering.

Link to https://engineering.purdue.edu/ENE/Academics/Undergrad

Plans of Study for Multidisciplinary Engineering

(from our ABET Extra Appendix 3)

Until 2012 all concentrations required 31 credits of mathematics, biology, chemistry, and physics: 47 credits of engineering at the 200 and higher levels (sophomore and senior); and 124 total credits to graduate. In 2012 the Indiana State Legislature passed legislation that was then signed into law that stated Bachelor's degree programs at state institutions should be 120 credits unless there were accreditation reasons that prevented this. Since the Multidisciplinary Engineering Program us not subject to any program criteria, the ENE Undergraduate Curriculum Committee determined that a 120 credit BSE degree that met all ABET requirements was feasible. This degree was developed and submitted to the Engineering Curriculum Committee as Engineering Faculty Document 23-12, which was approved in May 2012 effective for December 2012 graduates.

The Multidisciplinary Engineering Program was the first four-year degree program at Purdue University to meet the state mandate of 120 credits. The basic changes to reduce the degree requirements from 124 to 120 credits were; a reduction in number of engineering credits at the 200+ level from 47 to 45; a reduction in the number of credits in mathematical and physical, chemical and biological sciences from 31 to 30; and a one credit reduction in the area, which is an elective. The plans of study for the various concentrations within the Multidisciplinary Engineering Program are for the 120 credit degree program in effect through Fall 2014.

Please visit the Plans of Study site for sample plans, or see the IDE, BSE Plan here.

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

Minor

Engineering Leadership Minor

With a launch date of January 2013, the 16-credit Engineering Leadership Minor offers undergraduate engineering students opportunities to engage in experiential leadership experiences, faculty coaching, and technical leadership across a variety of contexts. To earn the minor, students must complete 7 credits of core courses and 9 credits that must include one experiential course and courses representing 1 or 2 concentration areas (see below). The list of approved courses can be found here.

Ethics

Ethics concentration courses align closely with regulatory, legal, and policy-related aspects of engineering

Sample courses

- OLS 34600 - Critical Thinking And Ethics
- CE 52400 - Legal Aspects In Engineering Practice

Global and Societal Impact

Global and Societal Impact concentration courses explore the impact of leadership across diverse stakeholders and national and global communities

Sample courses

- AGR 20100 - Communicating Across Culture
- AGEC 43500 - Leadership In A Changing World

Creativity and Innovation

Creativity and Innovation concentration courses incorporate entrepreneurial and business principles with engineering leadership

Sample courses

- ENTR 39000 - Special Topics In Entrepreneurship And Innovation
- OBHR 44200 - Introduction to Administrative Decision Making

Communication

Communication concentration courses focus on the development of students' professional skills and engagement with technical and nontechnical audiences.

Sample courses

- COM 22400 - Communicating In The Global Workplace
- COM 37500 - Conflict And Negotiation

Approved Courses

View the Approved Courses for Purdue College of Engineering's Engineering Leadership Minor here.

Division of Environmental and Ecological Engineering

About Environmental and Ecological Engineering

Environmental and Ecological engineers use the principles of systems engineering, biology, and chemistry to develop strategies to protect human and environmental health. Our unique name, Environmental and Ecological Engineering, was chosen to highlight our approach to managing complex problems with an integrated perspective that considers both environmental issues and ecological interactions. In the undergraduate curriculum there is an early focus on systems thinking and systems understanding with the inclusion of significant course requirements in ecology, sustainability, and industrial ecology. The EEE program strives for resilient design thinking that takes into account complexity and connectivity between systems.

Employment opportunities for EEE graduates are excellent. The U.S. Dept. of Labor projects substantial growth in jobs for the foreseeable future. Starting salaries are comparable to other Engineering fields and opportunities for advancement to positions of responsibility are excellent. Among the 14 **"Grand Challenges of Engineering"** announced by the National Academy of Engineering six of the 14 are explicitly in the domain of Environmental and Ecological engineering. Environmental engineering has a clear impact on societies and quality of life. Students interested in engineering that can make a positive difference for people should consider Environmental and Ecological Engineering. Meet with an advisor or faculty member to craft an individualized plan of study to meet your career goals.

Research within Environmental and Ecological Engineering may be characterized as being multidisciplinary and focused on cutting edge issues. The EEE discovery mission is positioned to respond to society's need to understand the world we live in, and to develop strategies for sustainably managing Earth's limited resources and ecosystems so that they will be available for generations to come. Topics emphasized within the EEE research portfolio include: environmental fate of air, water, and soil contaminants; sustainable urban design; renewable energy and the water-energy nexus; water and wastewater treatment; sustainable industrial systems; water, air, and nutrient cycling; sustainability engineering education; bio-based materials and products; industrial ecology and industrial processes; air quality.

Faculty

https://engineering.purdue.edu/EEE/People

Contact Information

Division of Environmental & Ecological Engineering
Purdue University

Potter Engineering Center, Room 364
500 Central Drive
West Lafayette, IN 47907-2022
Phone: (765) 496-9697
Email: eee@purdue.edu

Baccalaureate

Environmental and Ecological Engineering, BSEEE

About the Program

Environmental and Ecological engineers use the principles of systems engineering, biology, and chemistry to develop strategies to protect human and environmental health, and design sustainable systems and technologies. Our unique name, Environmental and Ecological Engineering, was chosen to highlight our approach to managing complex problems with an integrated perspective that considers both environmental issues and ecological interactions. In the undergraduate curriculum there is an early focus on systems thinking and systems understanding with the inclusion of significant course requirements in ecology, sustainability, and industrial ecology. The EEE program strives for resilient design thinking that takes into account complexity and connectivity between systems.

Employment opportunities for EEE graduates are excellent. Most businesses, industries, all levels of government and many international organizations hire environmental and ecological engineers. Graduates are prepared to enter a wide-range of employment sectors in environmental and engineering fields including the industrial and construction, government, consulting, municipal and public service, non-governmental organizations (NGOs) and education sectors. Common career pathways center around:

Water and Watershed Stewardship: Ensuring that engineered systems and ecological systems interact sustainably.

Pollution Control, Monitoring, Abatement and Remediation: Wastewater, soil and air treatment/control, industrial waste control and recycling.

Industrial Ecology: Optimize industrial resource use; analyze and control of complete life-cycles of materials; industrial system redesign; energy efficiency optimization.

Sustainability: Provide for current needs without sacrificing future ability to meet needs. Consider the whole system, including complex interactions of environmental, technological and societal systems.

The U.S. Dept. of Labor projects substantial growth in jobs for the foreseeable future. Starting salaries are comparable to other Engineering fields and opportunities for advancement to positions of responsibility are excellent. Among the 14 "**Grand Challenges of Engineering**" announced by the National Academy of Engineering six of the 14 are explicitly in the domain of Environmental and Ecological engineering. Environmental engineering has a clear impact on societies and quality of life. Students interested in engineering that can make a positive difference for people should consider Environmental and Ecological Engineering. Meet with an advisor or faculty member to craft an individualized plan of study to meet your career goals.

Research within Environmental and Ecological Engineering may be characterized as being multidisciplinary and focused on cutting edge issues. The EEE discovery mission is positioned to respond to society's need to understand the world we live in, and to develop strategies for sustainably managing Earth's limited resources and ecosystems so that they will be available for generations to come. Topics emphasized within the EEE research portfolio include: environmental fate of air, water, and soil contaminants; sustainable urban design; renewable energy and the water-energy nexus; water and wastewater treatment; sustainable industrial systems; water, air, and nutrient cycling; sustainability engineering education; bio-based materials and products; industrial ecology and industrial processes; air quality.

Mission Statement

The Division of Environmental and Ecological Engineering (EEE) furthers the learning, discovery, and engagement missions of the Purdue College of Engineering with a focus on understanding the ways in which all engineering activities affect and are affected by the environment. EEE will help the College fulfill the responsibility of service to the state, the nation, and the world through innovative and comprehensive undergraduate and graduate education, collaborative and wide-reaching research and discovery, and the assumption of ever-greater levels of leadership in addressing global environmental and ecological problems.

Program Educational Objectives

Graduates of the EEE Undergraduate Program will:

• Be prepared to assume immediate employment in the fields of environmental and ecological engineering or to continue education in an advanced degree program;

• Participate fully and ethically in the advancement of the profession within five years of graduation, as measured by one or more of the following:

- Achievement of, or significant progress toward, professional licensure
- Achievement of, or significant progress toward, an advanced degree
- Publication of research results and/or field reports
- Advancement to leadership roles within an engineering organization
- Professional participation in international engineering activities
- Participation with organizations, agencies, or companies who offer solutions to major societal and environmental issues.

Program Outcomes

Upon graduation, graduates of EEE will show:

- An ability to apply knowledge of mathematics, science and engineering,
- An ability to design and conduct experiments, as well as to analyze and interpret data,
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- An ability to function on multidisciplinary team
- An ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical responsibility
- An ability to communicate effectively
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- A recognition of the need for, and an ability to engage in life-long learning
- A knowledge of contemporary issues
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- A knowledge of the roles and responsibilities of public institutions and private organizations pertaining to environmental and ecological engineering
- A knowledge of sustainability tools used in all engineering thought, and an ability to use these tools in the design process

Summary of Program Requirements

The Summary of Program Requirements for Environmental and Ecological Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below,

complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

BSEEE
EEE
128 Credits

Departmental/Program Major Courses (46 credits)

Required Major Courses (23 credits)

- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 29000 - Introduction to Environmental And Ecological Engineering Seminar
- EEE 30000 - Environmental And Ecological Systems Modeling

- CE 35000 - Introduction To Environmental And Ecological Engineering or
- EEE 35000 - Introduction To Environmental And Ecological Engineering

- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability

- EEE 36000 - Environmental And Ecological Engineering Laboratory
- EEE 39000 - Environmental And Ecological Engineering Professional Practice Seminar
- EEE 43000 - Industrial Ecology And Life Cycle Analysis
- EEE 48000 - Environmental And Ecological Engineering Senior Design - Credit Hours: 1.00
- EEE 48000 - Environmental And Ecological Engineering Senior Design - Credit Hours: 2.00

Major Selectives (18cr) & Technical Electives (5cr)

BSEEE Degree Requirements

Please see the EEE Selective List for fulfillment of the following selectives:

- EEE Selective I - Credit Hours: 3.00
- EEE Selective II - Credit Hours: 3.00
- EEE Selective III - Credit Hours: 3.00
- EEE Selective IV - Credit Hours: 3.00
- EEE Selective V - Credit Hours: 3.00
- EEE Selective VI - Credit Hours: 3.00
- Technical Elective I - Credit Hours: 2.00
- Technical Elective II - Credit Hours: 3.00

Other Departmental/Program Course Requirements (55 credits)

(*satisfies FYE requirement)

- ENGR 13100 - Transforming Ideas To Innovation I *
- ENGR 13200 - Transforming Ideas To Innovation II *
- MA 16500 - Analytic Geometry And Calculus I *
- MA 16600 - Analytic Geometry And Calculus II *
- CHM 11500 - General Chemistry *
- CHM 11600 - General Chemistry *
- PHYS 17200 - Modern Mechanics *
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- CE 29700 - Basic Mechanics I (Statics)
- ME 20000 - Thermodynamics I
- CE 29800 - Basic Mechanics II Dynamics
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- IE 23000 - Probability And Statistics In Engineering I
- BIOL 28600 - Introduction To Ecology And Evolution
- BIOL 58500 - Ecology

EEE General Education Electives (24 credits)

General Education Program Requirements

- Satisfies H - Credit Hours: 3.00
- Satisfies BSS - Credit Hours: 3.00
- Satisfies IL - Credit Hours: 3.00
- Satisfies STS - Credit Hours: 3.00
- Satisfies OC - Credit Hours: 3.00 *
- ENGL 10600 - First-Year Composition Satisfies WC *
- EEE intersection society/environment - Credit Hours: 3.00

Free Electives (2)

- Free Elective - Credit Hours: 1.00
- Free Elective - Credit Hours: 1.00

University Core Requirements

http://www.purdue.edu/provost/initiatives/curriculum/course.html

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2

- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning

Program Requirements

Fall 1st Year

- ENGR 13100 - Transforming Ideas To Innovation I
- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition
- Free Elective - Credit Hours: 1.00

15 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II
- MA 16600 - Analytic Geometry And Calculus II
- CHM 11600 - General Chemistry
- PHYS 17200 - Modern Mechanics
- COM 11400 - Fundamentals Of Speech Communication

17 Credits

Fall 2nd Year

- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 29000 - Introduction to Environmental And Ecological Engineering Seminar
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- MA 26100 - Multivariate Calculus
- General Education Elective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

- EEE 35500 - Engineering Environmental Sustainability
- MA 26200 - Linear Algebra And Differential Equations
- CE 29700 - Basic Mechanics I (Statics)
- ME 20000 - Thermodynamics I
- General Education Elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- EEE 35000 - Introduction To Environmental And Ecological Engineering
- CE 29800 - Basic Mechanics II Dynamics
- IE 23000 - Probability And Statistics In Engineering I
- Technical Elective - Credit Hours: 2.00
- EEE Selective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

17 Credits

Spring 3rd Year

- EEE 30000 - Environmental And Ecological Systems Modeling

- CE 34000 - Hydraulics or
- CE 34300 - Elementary Hydraulics Laboratory

- EEE 39000 - Environmental And Ecological Engineering Professional Practice Seminar
- EEE 43000 - Industrial Ecology And Life Cycle Analysis
- BIOL 28600 - Introduction To Ecology And Evolution
- EEE Selective - Credit Hours: 3.00

16 Credits

Fall 4th Year

- EEE 48000 - Environmental And Ecological Engineering Senior Design
- EEE Selective - Credit Hours: 3.00
- EEE Selective - Credit Hours: 3.00
- BIOL 58500 - Ecology
- General Education Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- EEE 48000 - Environmental And Ecological Engineering Senior Design
- EEE Selective - Credit Hours: 3.00
- EEE Selective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15 Credits

Note

128 semester credits required for Bachelor of Science degree.

Students must have 32 credits at the 30000 level or above taken at Purdue.

2.0 Graduation GPA required for Bachelor of Science degree.

2.0 in College of Engineering courses at the 20000-level and above

Degree Requirements

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

Degree Works 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

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

Minor

Environmental and Ecological Engineering Minor

The minor in Environmental and Ecological Engineering consists of six courses (17 or 18 credits), and is available to any student at Purdue who has met the co- and/or pre-requisites for courses in the EEE course sequence. The minor includes four required courses (or course options), and two courses proposed by the student (six credits). The student proposed courses must be relevant to some aspect of EEE. A list of suggested student proposed courses is available on the EEE website. However, students are not limited to courses on this list.

Once a student has proposed a sequence of courses for the EEE minor, this will be submitted to a curriculum committee, which will approve the sequence. When the student has successfully completed the sequence of courses (earning at least a 2.0 grade point average over the entire sequence), that student will be granted a minor in EEE.

Option of

- EEE 35000 - Introduction To Environmental And Ecological Engineering or
- CE 35000 - Introduction To Environmental And Ecological Engineering or

- ABE 32500 - Soil And Water Resource Engineering

Typical Offering Frequency

EEE 35000/CE 35000 every semester

ABE 32500 every fall

Required

- EEE 35500 - Engineering Environmental Sustainability or
- CE 35500 - Engineering Environmental Sustainability

Typical Offering Frequency

every semester

Option of

- ME 59700 - Advanced Mechanical Engineering Projects I (Course Title: Sustainable Design and Manufacturing) or
- EEE 43000 - Industrial Ecology And Life Cycle Analysis

Typical Offering Frequency

ME 59700 every fall

EEE 43000 every spring

Required

- BIOL 28600 - Introduction To Ecology And Evolution

Typical Offering Frequency

every spring

Selectives

- Course from EEE Minor Selective List - Credit Hours: at least 3.00
- Course from EEE Minor Selective List - Credit Hours: at least 3.00

Note

Depending on the course requirements of the student's major, the number of additional credits to earn an EEE minor may be less than 17 or 18. For example, a course that is required for the student's major may be chosen as a student proposed course, as long as that course clearly is related to environmental and ecological engineering topics**.**

School of Industrial Engineering

About Industrial Engineering

Industrial Engineering entails designing and controlling complex systems and procedures for using production resources (people, information, equipment, and materials). The applications of industrial engineering principles can be found in manufacturing, postal/package delivery services, airlines, space programs, hospitals, banks, amusement parks, etc.

Senior design projects consist of a real-world application of IE principles by teaming students with a local industry in Indiana. Teams have taken on full-scale projects like designing floor layouts for factories and hospitals, designing operations to improve system efficiency, reducing time and waste in processing, allocating resources to optimize system performance, and developing a safety plan for preventing work-related injuries.

Disciplines in the major include production, operation research, manufacturing, and human factors.

Faculty

https://engineering.purdue.edu/IE/People/Faculty

Contact Information

Main Office

School of Industrial Engineering
Purdue University
315 N. Grant Street
West Lafayette, IN 47907-2023
Phone: +1 (765) 494-5400
Fax: +1 (765) 494-6802

Graduate Information

For Graduate Information please see Industrial Engineering Graduate Program Information.

Baccalaureate

Industrial Engineering, BSIE

About the Program

Industrial engineering entails the design, analysis, and management of complex human-integrated systems such as manufacturing systems, supply chain networks, and service systems. These systems typically consist of a combination of people,

information, material, and equipment. In such systems industrial engineers determine how to optimize the system for maximum efficiency, effectiveness, throughput, safety, or some other objective of interest to the stakeholders of the system.
Senior design projects consist of a real-world application of IE principles by teaming students with an industry partner. Teams have taken on full-scale projects like designing floor layouts for factories and hospitals, designing operations to improve system efficiency, reducing time and waste in processing, allocating resources to optimize system performance, and developing a safety plan for preventing work-related injuries.

Summary of Program Requirements

The Summary of Program Requirements for Industrial Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

code-BSc-IE
123 Credits for Graduation

Industrial Engineering Major Courses (36 credits)

Required IE Courses (36 credits)

- IE 20000 - Industrial Engineering Seminar
- IE 23000 - Probability And Statistics In Engineering I
- IE 34300 - Engineering Economics
- IE 33000 - Probability And Statistics In Engineering II
- IE 33200 - Computing In Industrial Engineering
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- IE 37000 - Manufacturing Processes I
- IE 38300 - Integrated Production Systems I
- IE 38600 - Work Analysis And Design I
- IE 43100 - Industrial Engineering Design
- IE 47400 - Industrial Control Systems
- IE 48600 - Work Analysis And Design II

IE Technical Electives - (15 credits)

NOTE: 6 credits required in IE courses, Must do two of the first three options listed below

https://engineering.purdue.edu/IE/Academics

- IE 47000 - Manufacturing Processes II or
- IE 48400 - Integrated Production Systems II

- IE 5XX00 - Credit Hours: 3.00 or

- IE 47000 - Manufacturing Processes II or
- IE 48400 - Integrated Production Systems II

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

Other Departmental/Program Course Requirements (55-57 credits)

Mathematics Requirements (18-20 cr.)

- MA 16500 - Analytic Geometry And Calculus I (satisfies FYE requirement) * or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies FYE requirement) *

- MA 16600 - Analytic Geometry And Calculus II (satisfies FYE requirement) * or
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies FYE requirement) *

- MA 26100 - Multivariate Calculus *
- MA 26500 - Linear Algebra *
- MA 26600 - Ordinary Differential Equations *

Science Requirements (14 cr.)

- PHYS 17200 - Modern Mechanics (satisfies FYE requirement) *
- PHYS 24100 - Electricity And Optics *
- CHM 11500 - General Chemistry (satisfies FYE requirement) *
- CS 15900 - Programming Applications For Engineers (satisfies FYE requirement)

General Engineering/Engineering Science Requirements (16 cr.)

- ENGR 13100 - Transforming Ideas To Innovation I (satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (satisfies FYE requirement)
- ME 27000 - Basic Mechanics I
- ME 20000 - Thermodynamics I
- NUCL 27300 - Mechanics Of Materials
- ECE 20100 - Linear Circuit Analysis I

General Education Elective Requirements (24 cr.)

Foundational Core

(http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- (satisfies Information Literacy selective for core; ENGL 10600/ENGL 10800 strongly recommended) - Credit Hours: 3.00
- (satisfies Written Communication selective for core; ENGL 10600/ENGL 10800 strongly recommended) - Credit Hours: 3.00

- (satisfies Oral Communication selective for core; COM 11400 strongly recommended) - Credit Hours: 3.00
- (satisfies Human Cultures: Humanities selective for core) - Credit Hours: 3.00
- (satisfies Human Cultures: Behavioral/Social Science selective for core) - Credit Hours: 3.00
- (satisfies Science, Technology & Society selective for core) - Credit Hours: 3.00

IE General Education Electives

(https://engineering.purdue.edu/IE/Academics/Undergrad/General%20Education%20Elective%20Program%20Overview)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1 - PHYS 17200
- Science #2 - CHM 11500
- Science, Technology & Society
- Written Communication
- Oral Communication
- Quantitative Reasoning - MA 16100/MA 16500

Program Requirements

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- General Education Elective I - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I

14 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics
- CS 15900 - Programming Applications For Engineers
- ENGR 13200 - Transforming Ideas To Innovation II
- General Education Elective II - Credit Hours: 3.00

16 Credits

Fall 2nd Year

- IE 23000 - Probability And Statistics In Engineering I

- General Elective III - Credit Hours: 3.00
- MA 26100 - Multivariate Calculus
- IE 34300 - Engineering Economics
- ME 27000 - Basic Mechanics I
- IE 20000 - Industrial Engineering Seminar

16 Credits

Spring 2nd Year

- IE 33000 - Probability And Statistics In Engineering II
- MA 26500 - Linear Algebra
- NUCL 27300 - Mechanics Of Materials
- PHYS 24100 - Electricity And Optics
- General Elective IV - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- ECE 20100 - Linear Circuit Analysis I
- IE 33200 - Computing In Industrial Engineering
- IE 33500 - Operations Research - Optimization
- IE 37000 - Manufacturing Processes I
- MA 26600 - Ordinary Differential Equations
- General Elective V - Credit Hours: 3.00

18 Credits

Spring 3rd Year

- IE 33600 - Operations Research - Stochastic Models
- IE 38300 - Integrated Production Systems I
- IE 38600 - Work Analysis And Design I
- ME 20000 - Thermodynamics I
- General Elective VI - Credit Hours: 3.00

15 Credits

Fall 4th Year

- IE 47400 - Industrial Control Systems
- IE 48600 - Work Analysis And Design II
- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00

- General Elective VII - Credit Hours: 3.00

15 Credits

Spring 4th Year

- IE 43100 - Industrial Engineering Design
- Technical Elective III - Credit Hours: 3.00
- Technical Elective IV - Credit Hours: 3.00
- Technical Elective V - Credit Hours: 3.00
- General Elective VIII - Credit Hours: 3.00

15 Credits

Note

*Satisfies a University Core Requirement

**Satisfies a Non-departmental Major Course Requirement

123 semester credits required for Bachelor of Engineering degree.

2.0 Graduation GPA required for Bachelor of Engineering degree.

Degree Requirements

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

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

School of Materials Engineering

An Overview

In everything we build-cars, planes, boats, computers, cell phones, bridges, skyscrapers, dental implants-the properties of the materials used determine the product's performance.

What is Materials Engineering?

New materials have been among the greatest achievements of every age and they have been central to the growth, prosperity, security, and quality of life of humans since the beginning of history. It is always new materials that open the door to new technologies, whether they are in civil, chemical, construction, nuclear, aeronautical, agricultural, mechanical, biomedical or electrical engineering.

Materials scientists and engineers continue to be at the forefront of all of these and many other areas of science, too. Materials science and engineering influences our lives each time we buy or use a new device, machine, or structure. (You can read more about the impact of this exciting field in our list of suggested readings.) The definition of the academic field of Materials Science & Engineering stems from a realization concerning every application of materials: it is the properties of the material that give it value. A material may be chosen for its strength, its electrical properties, resistance to heat or corrosion, or a host of other reasons; but they all relate to properties.

Experience shows that all of the useful properties of a material are intimately related to its structure, at all levels, including which atoms are present, how the atoms are joined, and how groups of atoms are arranged throughout the material. Most importantly, we learn how this structure, and the resulting properties, are controlled by the processing of the material.

Finally materials must perform their tasks in an economical and societally responsible manner. Understanding the relationships between properties, structure, processing and performance makes the Materials Engineer the master of the engineering universe.

Materials Engineering's academic programs have been developed around broad and basic phenomena, applied to all major classes of artificial materials-ceramics, metals, glasses, polymers, and semiconductors. The undergraduate and graduate programs integrate our faculty strengths across the field's four cornerstones: structure, properties, processing, and performance.

Purdue's School of Materials Engineering is dedicated to meeting the materials needs of modern society through:

Learning-training the next generation of materials experts for every industrial sector;

Outreach-providing leadership within the materials profession.

Faculty

https://engineering.purdue.edu/MSE/People/ptFaculty

Contact Information

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Neil Armstrong Hall of Engineering
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West Lafayette, IN 47907-2045
Telephone: (765) 494-4100
FAX: (765) 494-1204
E-mail regarding academic programs: vicline@purdue.edu

Graduate Information

For Graduate Information please see Materials Engineering Graduate Program Information.

Baccalaureate

Materials Engineering, BSMSE

About the Program

In everything we build-cars, planes, boats, computers, cell phones, bridges, skyscrapers, dental implants-the properties of the materials used determine the product's performance.

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Outreach-providing leadership within the materials profession.

Summary of Program Requirements

The Summary of Program Requirements for Materials Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

code-BS-MSE
Code-XXX
126 Credits for Graduation
Students must have a graduation index of 2.0
Student must have a minimum average GPA of 2.0 in MSE 200 and 300 level courses

Materials Engineering Major Courses (42 credits)

(https://engineering.purdue.edu/MSE/Academics/Undergrad/undergrad_manual.pdf)

Required MSE Courses (42 credits)

- MSE 23000 - Structure And Properties Of Materials
- MSE 23500 - Materials Properties Laboratory
- MSE 39000 - Materials Engineering Seminar
- MSE 25000 - Physical Properties In Engineering Systems
- MSE 26000 - Thermodynamics Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 33500 - Materials Characterization Laboratory
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 33000 - Processing And Properties Of Materials
- MSE 34000 - Transport Phenomena
- MSE 36700 - Materials Processing Laboratory
- MSE 38200 - Mechanical Response Of Materials
- MSE 43000 - Materials Processing And Design I
- MSE 44500 - Materials Engineering Systems Analysis And Design
- MSE 44000 - Materials Processing And Design II

MSE technical Electives - (18 credits)

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- Technical Elective IV - Credit Hours: 3.00
- Technical Elective V - Credit Hours: 3.00
- Technical Elective VI - Credit Hours: 3.00

Other Departmental/Program Course Requirements (48 credits)

- MA 16500 - Analytic Geometry And Calculus I (Satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (Satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (Satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (Satisfies FYE requirement)

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- ENGR 13100 - Transforming Ideas To Innovation I (Satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (Satisfies FYE requirement)
- ENGL 10600 - First-Year Composition (Satisfies FYE requirement)
- COM 11400 - Fundamentals Of Speech Communication (required)
- PHYS 17200 - Modern Mechanics (satisfies FYE requirements)

- MA 26100 - Multivariate Calculus (satisfies Math and physics requirement)
- MA 26500 - Linear Algebra (satisfies Math and physics requirement)
- MA 26600 - Ordinary Differential Equations (satisfies Math and physics requirement)
- PHYS 24100 - Electricity And Optics (satisfies Math and physics requirement)
- PHYS 25200 - Electricity And Optics Laboratory
- CHM 25700 - Organic Chemistry

Note

COM 11400 is a 'highly recommended General elective and is counted separately from the 18 credits of Gen Ed requirement. Therefore the Gen Ed requirement is 18 + 3 credits = 21 when including COM 11400

General Electives (18 credits)

- G.E.-I - Credit Hours: 3.00
- G.E.-II - Credit Hours: 3.00
- G.E.-III - Credit Hours: 3.00
- G.E.-IV - Credit Hours: 3.00
- G.E.-V - Credit Hours: 3.00
- G.E.- VI - 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

Program Requirements

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition (or equivalent)
- ENGR 13100 - Transforming Ideas To Innovation I

14(13) Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics
- CHM 11600 - General Chemistry
- ENGR 13200 - Transforming Ideas To Innovation II
- COM 11400 - Fundamentals Of Speech Communication

17 Credits

Fall 2nd Year

- MSE 23000 - Structure And Properties Of Materials
- MSE 23500 - Materials Properties Laboratory
- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics
- MA 26500 - Linear Algebra
- MSE 39000 - Materials Engineering Seminar

16 Credits

Spring 2nd Year

- MSE 25000 - Physical Properties In Engineering Systems
- MSE 26000 - Thermodynamics Of Materials
- MSE 27000 - Atomistic Materials Science
- MA 26600 - Ordinary Differential Equations
- General Elective I - Credit Hours: 3.00
- PHYS 25200 - Electricity And Optics Laboratory
- MSE 39000 - Materials Engineering Seminar

16 Credits

Fall 3rd Year

- MSE 33500 - Materials Characterization Laboratory
- MSE 34000 - Transport Phenomena
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- CHM 25700 - Organic Chemistry
- General Elective II - Credit Hours: 3.00
- MSE 39000 - Materials Engineering Seminar

16 Credits

Spring 3rd Year

- MSE 33000 - Processing And Properties Of Materials

- MSE 36700 - Materials Processing Laboratory
- MSE 38200 - Mechanical Response Of Materials
- Technical Elective I - Credit Hours: 3.00
- General Elective III - Credit Hours: 3.00
- MSE 39000 - Materials Engineering Seminar

15 Credits

Fall 4th Year

- MSE 43000 - Materials Processing And Design I
- MSE 44500 - Materials Engineering Systems Analysis And Design
- MSE 39000 - Materials Engineering Seminar
- General Elective IV - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

15 Credits

Spring 4th Year

- MSE 44000 - Materials Processing And Design II
- Technical Elective IV - Credit Hours: 3.00
- Technical Elective V - Credit Hours: 3.00
- Technical Elective VI - Credit Hours: 3.00
- General Elective V - Credit Hours: 3.00
- General Elective VI - Credit Hours: 3.00

18 Credits

Note

126 semester credits required for Bachelor of Engineering degree.

Students must have a graduation index of 2.0

Degree Requirements

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

Degree Works 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

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

Minor

Materials Science and Engineering Minor

A minor in Materials Engineering is available to students with an entering cumulative GPA of 3.2 or better. A MSE Minor will be granted on the completion of the following 18 hrs.

The core requirements are

- MSE 23000 - Structure And Properties Of Materials (Offered Fall and Spring)[1]
- MSE 26000 - Thermodynamics Of Materials (Offered Spring Sems.)
- MSE 33000 - Processing And Properties Of Materials (Offered Spring Sems.)

And three of the following electives

- MSE 27000 - Atomistic Materials Science (Offered Spring Sems.)
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials (Offered Fall Sems.)
- MSE 34000 - Transport Phenomena (Offered Fall Sems.)
- MSE 38200 - Mechanical Response Of Materials (Offered Spring Sems.)
- MSE 5xx00 level courses (with Faculty Approval) (Offered Fall and Spring) - Credit Hours: 3.00

Note

No laboratory classes can fulfill the MSE minor requirements. This includes MSE 23500, MSE 33500, MSE 36700, MSE 43000, MSE 44000, and MSE 49900.

Up to two MSE 5xx level courses can be taken to fulfill the 18 credit hours required.

If student is ME, NE, or ChE, then MSE 34000 is not allowed and the 9 credits must be selected from rest of elective list.

A grade of "C" (not "C-") or better in all of the courses taken toward the MSE minor is required.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus.

The pre- and co-requisites for MSE courses relevant to the minor are

Class	Pre- and Co-requisites
MSE 23000	Pre: CHM 11500, MA 16500

MSE 26000	Pre: CHM 11500, MA 16500; Co: MSE 23000
MSE 27000	Pre: MA 26100; Co: MSE 23000, MA 26500
MSE 33000	Pre: MSE 23000; MSE 26000
MSE 34000	Pre: MA 26600
MSE 37000	Pre: MSE 23000, MSE 27000, PHYS 24100
MSE 38200	Pre: MA 26500 and Statics/Dynamics Course
MSE 5xx00	Pre: MSE 23000 and Consent of Instructor[2]

Note

[1] NUCL 32000 and CE 23100 are also acceptable.
[2] Prerequisites for MSE 5xx00 courses will vary by course.

School of Mechanical Engineering

An Overview

Mechanical engineering involves designing machinery that either produces, transmits, or uses power.

The school's facilities include two major satellite research laboratories: The Ray W. Herrick Laboratories provide facilities for research in mechanical vibrations, noise control, acoustics, fluid mechanics, and heat transfer for energy utilization. The Zucrow Laboratories, named after their founder, started out in 1948 as one of the country's first liquid-rocket test facilities. Research in the laboratories, located next to the Purdue Airport, has expanded into combustion, propulsion, and fluid dynamics.

The School of Mechanical Engineering is organized into the following nine areas:

- Acoustics and Noise Control
- Bioengineering
- Combustion, Energy Utilization and Thermodynamics
- Design
- Fluid Mechanics and Propulsion
- Heat Transfer
- Heating, Ventilation, Air Conditioning and Refrigeration
- Manufacturing and Materials Processing
- Mechanics and Vibration
- Nanotechnology
- Systems, Measurement & Control

Faculty

https://engineering.purdue.edu/ME/People/index.html

Contact Information

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Development Office
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Graduate Office
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Undergraduate Office
meugoff@ecn.purdue.edu

Graduate Information

For Graduate Information please see Mechanical Engineering Graduate Program Information.

Baccalaureate

Mechanical Engineering, BSME

About the Program

Mechanical engineering comprises a wide range of activities that include researching, designing, developing, manufacturing, managing and controlling engineering systems and their components. The many industrial sectors to which mechanical engineers make substantial contributions include aerospace, automotive, biotechnology/pharmaceutical, chemical/petroleum, computers/electronics, construction, consumer/food products, energy/nuclear, heavy/off-road equipment, engineering consulting, and thermal systems, among others. As such, mechanical engineering is the broadest of all of the engineering disciplines and provides the widest range of career opportunities. Graduates of the School of Mechanical Engineering have gone on to become CEOs, entrepreneurs, chief engineers, business analysts, astronauts, faculty, physicians, dentists, paten lawyers and public policy leaders.

Program Educational Objectives and Outcomes
The School of Mechanical Engineering offers coursework leading to the Bachelor of Science in Mechanical Engineering (B.S.ME).
The program educational objectives of the School of Mechanical Engineering are to matriculate graduates who conduct themselves in a responsible, professional and ethical manner (citizenship), and who upon the years following graduation, are committed to:

1. Discovery

- Actively embracing leadership roles in the practice of engineering in industry and government organizations (including both traditional and emerging technical areas).
- Conducting research and development across disciplines (via graduate study or industry) to advance technology and foster innovation in order to compete successfully in the global economy.
- Applying their engineering problem-solving skills to less-traditional career paths (e.g., law, medicine, business, education, start-up ventures, public policy, etc.).

2. Learning

- Actively participating in ongoing professional development opportunities (conferences, workshops, short courses, graduate education, etc.).
- Updating and adapting their core knowledge and abilities to compete in the ever-changing global enterprise.
- Developing new knowledge and skills to pursue new career opportunities.

3. Engagement

- Serving as ambassadors for the engineering profession, inspiring others to develop a passion for engineering.
- Exchanging and applying knowledge to create new opportunities that advance society and solve a variety of technical and social problems.
- Advancing entrepreneurial ventures and fostering activities that support sustainable economic development to enhance the quality of life of people in the state, across the country and around the world.

In order for students to schieve these objectives. the program of study should satisfy the comprehensive set of program outcomes categorized in three areas: engineering foundational skills, professional skills, and emerging skills.

Engineering Foundational Skills

The program should provide students with a solid technical foundation for their careers. This foundation should include:

- Engineering fundamentals.
- Analytical skills.
- Experimental skills.
- Modern engineering tools.
- Design skills.
- Impact of engineering solutions.

Professional Skills

The program should prepare students to be effective engineers in the professional workplace. To this end, students should develop the following professional skills:

- Communication skills.
- Teamwork skills.
- Professional and ethical responsibility.
- Contemporary issues.
- Lifelong learning.

Emerging Skills

The program should assist students in fostering a number of other emerging skills that are becoming increasingly critical to the success of future engineers. These emerging skills include:

- Leadership.
- Global engineering skills.
- Innovation.
- Entrepreneurship.

Mechanical Engineering Program Description

To achieve the above stated objectives and outcomes, the School of Mechanical Engineering has developed a comprehensive, integrated curriculum to provide students with a broad base on which to build an engineering career. It is founded on basic sciences, including physics, chemistry and mathematics; computer science and computer graphics; and oral and written communications skills.

To this foundation, a core of engineering science and design courses are added in three main curriculum stems: mechanical sciences (statics, dynamics, mechanics of materials, and structures and properties of materials), information technologies (electric circuits and electronics, instrumentation, system modeling and controls), and thermal-fluid sciences (thermodynamics, fluid mechanics and heat transfer).

Throughout the core curriculum, students gain extensive laboratory and computer experience via modern facilities in all basic areas of the discipline. In addition, the curriculum provides an integrated innovation, design and entrepreneurship experience. This experience - which begins with a sophomore-level cornerstone course and culminates with a senior-level capstone course - emphasizes innovation, problem-solving, leadership, teamwork, communication skills, practical hands-on experience with various product design processes and entrepreneurship. Students then specialize by selecting two restricted electives that provide additional depth in two of the three main stems of the curriculum. Students can further specialize with 12 credit hours of technical/professional electives in engineering, mathematics, natural sciences, select management courses or individualized project courses (ME 49700).

Just as design experiences are integrated throughout the mechanical engineering curriculum, so too are opportunities to communicate technical information, both orally and in writing. Students experience a variety of communications opportunities in progressing through the mechanical engineering program.

As a freshman, each student is required to take both oral and written communication courses. These courses lay the foundation for future oral and written communications. In the sophomore seminar course (ME 29000), students learn how to create professional documents and correspondence (e.g., resumes, letters, memos, etc.), develop personal interview skills, learn the basics of Web publishing and develop a global engineering professional profile. In ME 26300, the cornerstone design course, student teams prepare formal design reports, give oral presentations and maintain individual design notebooks. The communications experiences culminate in the capstone design course (ME 46300), in which student teams prepare presentations and reports for the sponsors of their selected design projects and compete in an innovation competition.

A major feature of the curriculum is the flexible 39-credit-hour elective program, of which 24 credit hours are taken during the senior year. This allows for a program with considerable breadth while also permitting the depth and specialization in an area of the student's professional interests.

Because of the wide scope of activities in which the mechanical engineer is engaged and because of the broad spectrum of student interests, mechanical engineering graduates may choose either to enter the profession immediately after receiving their bachelor's degree or go directly to graduate school. In either case, the curriculum provides a firm foundation for continuing education and fosters a commitment to lifelong learning, whether it is as a member of the engineering profession, through formal graduate work or through independent study.

Visit the School of Mechanical Engineering website for more current information about the undergraduate programs.

Scholarships

The School of Mechanical Engineering sponsors a broad array of need-based and merit-based scholarships. Eligible candidates (incoming sophomores through senior mechanical engineering students) are invited in mid-spring to submit applications for consideration. To qualify, students are required to have a scholastic index of 2.8 or better on a 4.0 scale. Awards range from $500 to $10,000 and total more than $1 million. This scholarship money is in addition to the University's Trustees and Presidential scholarships in Mechanical Engineering, which, when fully funded, will include more than 300 awards worth a total of more than $2 million.

Professional Student Organizations and Activities

Student organizations provide valuable opportunities for students to enhance organizational, communication, teamwork and leadership skills. Students also are strongly encouraged to become involved in one or more extracurricular activities. Student organizations specific to mechanical engineering include the American Society of Mechanical Engineers (ASME), the Purdue Mechanical Engineering Ambassadors (PMEA), Pi Tau Sigma (the Mechanical Engineering Honor Society) and the Society of Automotive Engineers (SAE).

Professional Practice Program with Industry or Governmental Organizations

The professional practice programs enable qualified students to obtain experiences related to their specific engineering discipline with selected employers while completing the requirements of their undergraduate degree. Students can participate in a five-session co-op, a three-session co-op or an internship program. International internships also are available through the Global Partners in Apprenticeship Learning (G-PAL) Program within the Office Professional Practice (OPP). OPP also offers the GEARE program, which combines domestic and international work experiences, a design project component and an opportunity to study abroad.
For more information, visit the Office of Professional Practice website.

Honors Program
An honors program is available for outstanding mechanical engineering undergraduate students. The honors program is a mechanism for:

A. Participating in small enrollment, targeted courses.
B. Participating in a directed project in their area of interest.
C. Stimulating interest in graduate study and research/academic careers.
D. Developing a community of honors scholars.
E. Allowing for special recognition of high levels of academic achievement.

The Honors program utilizes the technical, general education and free elective requirements for the B.S.ME degree in a way that is consistent with the honors designation. Admission to the Honors program is automatic for any student meeting the admission requirements for the First-Year Engineering Honors program. Students not in the First-Year Engineering Honors program can apply for admission into the Honors program by completing an honors application and meeting the required cumulative GPA for admission.

Completion of the Honors program requires earning a required minimum number of honor points (credit hours) earned in one of the following manners:

- Take honors courses (including the sophomore and junior honors seminar sequence).
- Complete honors experiences (e.g., study abroad, special work experiences, etc.).
- Take honors strategic initiative courses (defined by the College of Engineering).

Successful completion of the minimum number of honors points will earn a student a certificate and his/her transcript will read, "Bachelor of Science Mechanical Engineering - Honors Program Awarded at West Lafayette."
More details on the Honors program can be found on the ME website. Questions about the program should be directed to Professor Charles M. Krousgrill.

Study Abroad
Global competency skills are a major focus in the School of Mechanical Engineering. By graduation, roughly 30 percent of ME graduates have international experience (as compared to about 3 percent nationally in engineering). The School of Mechanical Engineering has developed an extensive and multi-faceted study abroad program that ranges from an extensive eight-month experience abroad to a three-week stint abroad. This staged program allows students to pick and choose the program that best fits their requirements and timing. A brief summary of these programs are provided below. Additional information can be found on the ME Global Programs website.

GEARE Program. The Global Engineering Alliance for Research and Education (GEARE) program is the flagship international program. The GEARE program involves an eight-month experience abroad that includes both a domestic and international internship, a semester of study abroad with fully transferable engineering course credits (all taught in English) and a one-semester

to two semester design team project with students from the international partner institution.

ETA Program. The Engineering Term Abroad (ETA) program is a one-semester study abroad at a partner institution and includes fully transferable engineering course credits (all taught in English). This enables participating students to continue with their engineering subjects and thus stay on track for graduation while still gaining international experience. Current partner institutions exist in Australia, China, England, France, Germany, India, New Zealand, Singapore, Spain and Turkey, among other locations and is our most popular international program.

RTA Program. The Research Term Abroad (RTA) program is designed to enable interested students to conduct undergraduate engineering research at a partner institution. Currently our primary partners are Hannover University and Clausthal University of Technology in Germany.

G-PAL Program. The Global Partners in Apprenticeship (G-PAL) program offers a pair of concurrent international internship positions, one for a student from the target international partner country and one for a student from the U.S. Preferably both students will be housed at the international student's home for the duration of the assignment abroad. The G-PAL students can also come from two different academic disciplines. Internships are typically three months to six months in duration.

MTA. Special Maymester Term Abroad (MTA) programs are available to select locations and provide students with a short three-week stint in a foreign country. Brief stints like this enable students to test the waters to see if they would be interested in a more protracted time abroad. As such, this program compliments other existing programs and provides a vehicle for students experience going abroad without a long-term commitment. Currently, the Maymester program involves international experiences in China.

Registration for the Fundamentals of Engineering Examination

Mechanical engineering seniors are strongly encouraged to take the first step to becoming registered professional engineers (PEs) by registering and successfully completing the Fundamentals of Engineering (FE) examination, also called the Engineer in Training (EIT) exam. Seniors register to take the FE exam at the West Lafayette campus in their final fall or spring semester before graduation. Announcements appear early in the semester. To aid seniors in their preparation for the exam, the student chapter of the American Society of Mechanical Engineers (ASME) sells EIT Review Manuals, and the student chapter of the American Society of Civil Engineers (ASCE) organizes faculty-taught review sessions on key topics covered on the FE exam. Typically, 50 to 75 percent of graduating mechanical engineering seniors register to take the FE exam, and 98 to 100 percent pass the exam on the first attempt.

After passing the FE exam and completing four years of engineering experience after graduation, an engineer is typically eligible to take the professional engineering (PE) licensing examination. Specific information about the EIT exam is available on the School of Mechanical Engineering home page. Questions about the FE exam or the process to become a registered professional engineer should be directed to Professor James D. Jones in the School of Mechanical Engineering.

Undergraduate Research Opportunities

In addition to the traditional classroom experience, students in the School of Mechanical Engineering have the opportunity to conduct cutting-edge research in one of the thirteen ME Research Areas listed below:

- Acoustics and Noise Control
- Bioengineering
- Combustion
- Design
- Fluid Mechanics and Propulsion
- Heat Transfer

- Heating, Ventilation, Air Conditioning and Refrigeration
- Manufacturing and Materials Processing
- Mechanics and Vibrations
- Nanotechnology
- Robotics
- Solid Mechanics
- Systems, Measurement and Control

Students discover first-hand how research contributes to the advancement of human knowledge. They experience a change of pace from formal classroom activities and gain valuable hands-on skills applicable to both research and non-research careers. In addition, students develop their knowledge of the research process and tools used by professional researchers and increase their proficiencies in technical communication. Such experiences help students connect their summer experience with their future goals, with particular focus on post-graduate education.

Interested students are strongly encouraged to consider participation in the Sumer Undergraduate Research Fellowship (SURF) Program or the Discovery Park Undergraduate Research Internship (DURI) Program. To find Purdue faculty who are active in these areas, please visit the Indiana Database of University Research Expertise (INDURE). Use the advanced search to filter results by keyword, area, grants, etc.

Preparation for Graduate Study

The School of Mechanical Engineering also offers graduate work leading to the degrees of Master of Science (M.S.), for students with non-engineering degrees; Master of Science in Engineering (M.S.E), for students with non-mechanical engineering degrees; Master of Science in mechanical engineering (M.S.ME), for students with B.S.ME degrees; and the Doctor of Philosophy (Ph.D.).

The regular undergraduate curriculum (and the honors undergraduate program) provide a strong foundation for graduate study, and students who complete either of the programs with appropriate academic records are encouraged to pursue graduate work. Many graduates have continued their education by pursuing advanced studies in engineering, business, law, medicine, dentistry and public policy.

For answers to your questions about graduate study, visit the Mechanical Engineering Graduate Office in the Mechanical Engineering Building, Room 1003, call 765-494-5730, email megrad@ecn.purdue.edu or visit the ME website.

Combined B.S.ME/M.S.ME Program

A combined B.S.ME/M.S.ME program is available for outstanding mechanical engineering undergraduate students. This program is anticipated to take approximately five years to complete (with the M.S.ME non-thesis option) and result in receiving both the B.S.ME and M.S.ME degrees.

The B.S.ME/M.S.ME program is a mechanism for:

A. Providing a seamless transition from the B.S.ME to the M.S.ME program.
B. Participating in a directed project in their area of interest.
C. Stimulating interest in graduate study and research/academic careers.
D. Allowing for special recognition of high levels of academic achievement.

The B.S.ME/M.S.ME program requires students to take 12 hours of graduate coursework toward their B.S.ME professional elective requirement. This same 12 hours likewise count toward the M.S.ME degree.
Interested students typically apply as an "internal ME applicant" in the second half of their junior year after completion of 81 hours of coursework in the undergraduate program with a cumulative undergraduate GPA of 3.2 or higher. If a GPA of 3.0 has been maintained and grades of "B" or better are received in the first two graduate courses (typically in the seventh semester), the student will be asked to formally apply to the Purdue Graduate School at the beginning of his or her eighth semester of the senior year.

Complete details of the combined B.S.ME/M.S.ME program can be found on the Web. Questions about this information should be directed to Julayne Moser, email: moser@purdue.edu.

B.S.ME/M.B.A. 5-Year Program

The School of Mechanical Engineering in conjunction with the Krannert School of Management offers an integrated five-year B.S.ME/M.B.A. program to high-achieving students, Each year a significant number of engineering graduates pursue M.B.A.s at U.S. business schools. The M.B.A. is seen as a complement to the engineer's technical education, providing an understanding of the business context within which many technical decisions are made. Many employers also have a strong preference for hiring M.B.A.s with engineering backgrounds, particularly in the manufacturing and technology sectors, in which Krannert and the College of Engineering enjoy many longstanding relationships with leading employers. The B.S.ME/M.B.A. combined degree offering will provide top B.S.ME students an efficient and cost-effective path for developing management knowledge as well as the highly valued credential of an M.B.A. degree. It will also open new job opportunities for the program graduates that expedite their progression to high-level management positions.

Basic admission requirements include:

1. Maintaining a 3.5 graduation GPA.
2. Securing at least one session of internship and/or co-op work experience prior to the senior year.
3. Securing advanced credit (preferably math) or willingness to accelerate your ME program by taking summer courses.
4. Completing an application and successfully interviewing for a position with the Krannert School of Management faculty.

More details about the B.S.ME/M.B.A. program are available online.

Summary of Program Requirements

The Summary of Program Requirements for Mechanical Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

code-BS-ME
Code-XXX
128 Credits for Graduation
Students need cumulative GPA of 2.0 to graduate.
Students need ME Core GPA of 2.0 to graduate (ME Major + Other School/Department Reqs).

Mechanical Engineering Major Courses (43 credits)

(https://engineering.purdue.edu/ME/Academics/Undergraduate/index.html)

- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 27400 - Basic Mechanics II
- ME 29000 - Global Engineering Professional Seminar

- ME 30900 - Fluid Mechanics

- ME 30000 - Thermodynamics II 2 of 3 required - Satisfies Restricted Selective requirements or
- ME 45200 - Machine Design II 2 of 3 required - Satisfies Restricted Selective requirements or
- ME 47500 - Automatic Control Systems 2 of 3 required - Satisfies Restricted Selective requirements

- ME 31500 - Heat And Mass Transfer
- ME 32300 - Mechanics Of Materials
- ME 35200 - Machine Design I
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- ME 46300 - Engineering Design

ME Professional Selectives (12 credits)

(https://engineering.purdue.edu/ME/Academics/Undergraduate/METechElects.html)

- Technical Selective I - Credit Hours: 3.00
- Technical Selective II - Credit Hours: 3.00
- Technical Selective III - Credit Hours: 3.00
- Technical Selective IV - Credit Hours: 3.00

First-Year Engineering Course Requirements (29-31 credits)

*(http://www.purdue.edu/provost/initiatives/curriculum/course.html)

- CHM 11500 - General Chemistry (Science Outcome I)
- Oral Communication Selective - COM 11400 - Fundamentals Of Speech Communication Recommended (Oral Communication Outcome) *
- Written Communication Selective - ENGL 10600 - First-Year Composition Recommended - (Written Communication Outcome) *
- ENGR 13100 - Transforming Ideas To Innovation I (Information Literacy Outcome)
- ENGR 13200 - Transforming Ideas To Innovation II
- MA 16500 - Analytic Geometry And Calculus I (Quantitative Reasoning Outcome)
- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics (Science Outcome II)

Science Selective

Select one from list (all options accepted).

- BIOL 11000 - Fundamentals Of Biology I
- CHM 11600 - General Chemistry
- CS 15900 - Programming Applications For Engineers

Other School/Department Course Requirements (23 credits)

- CGT 16300 - Graphical Communication And Spatial Analysis (Not included in ME Core GPA)
- ECE 20100 - Linear Circuit Analysis I
- ECE 20700 - Electronic Measurement Techniques
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- MA 30300 - Differential Equations and Partial Differential Equations for Engineering and the Sciences
- MSE 23000 - Structure And Properties Of Materials
- PHYS 24100 - Electricity And Optics

General Education Selectives (18 credits) and Free Elective (3 Credits)

(https://engineering.purdue.edu/ME/Academics/Undergraduate/GenEds.html)

- Econ Sel. (B/SS) - Credit Hours: 3.00
- WAC (*Hum*) - Credit Hours: 3.00
- G.E.-I - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- G.E.-II - Credit Hours: 3.00
- G.E.-III - Credit Hours: 3.00
- G.E.-IV - Credit Hours: 3.00

University Core Requirements

- Human Cultures Humanities - WAC Sel.
- Human Cultures Behavioral/Social Science - ECON Sel.
- Information Literacy ENGR 13100 - Transforming Ideas To Innovation I
- Science Selective CHM 11500 - General Chemistry
- Science Selective PHYS 17200 - Modern Mechanics
- Science, Technology & Society Selective ME 29000 - Global Engineering Professional Seminar
- Written Communication - Written Comm. Sel.
- Oral Communication - Oral Comm. Sel.
- Quantitative Reasoning MA 16500 - Analytic Geometry And Calculus I

Program Requirements

https://engineering.purdue.edu/ME/Academics/Undergraduate/index.html

Fall 1st Year

- CHM 11500 - General Chemistry (Science I)
- Written Communication - ENGL 10600 - First-Year Composition Recommended (Written Communication)
- ENGR 13100 - Transforming Ideas To Innovation I (Inform. Lit.)
- MA 16500 - Analytic Geometry And Calculus I (Quant. Reason.)
- General Education Sel. I - Credit Hours: 3.00

16-17 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II
- Oral Communication - COM 11400 - Fundamentals Of Speech Communication Recommended (Oral Communication)
- MA 16600 - Analytic Geometry And Calculus II
- PHYS 17200 - Modern Mechanics (Science II)
- Science Selective - Credit Hours: 3.00-4.00

16-17 Credits

Fall 2nd Year

- CGT 16300 - Graphical Communication And Spatial Analysis
- MA 26100 - Multivariate Calculus
- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- ME 29000 - Global Engineering Professional Seminar
- PHYS 24100 - Electricity And Optics

16 Credits

Spring 2nd Year

- ECE 20100 - Linear Circuit Analysis I
- ECE 20700 - Electronic Measurement Techniques
- MA 26200 - Linear Algebra And Differential Equations
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 27400 - Basic Mechanics II
- Economics Selective (*B/SS*) - Credit Hours: 3.00

17 Credits

Fall 3rd Year

- MA 30300 - Differential Equations and Partial Differential Equations for Engineering and the Sciences
- ME 30900 - Fluid Mechanics
- ME 32300 - Mechanics Of Materials
- ME 36500 - Measurement And Control Systems I
- World Affairs and Cultures Selective (*Humanities*) - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- ME 35200 - Machine Design I
- ME 37500 - Measurement And Control Systems II
- MSE 23000 - Structure And Properties Of Materials
- General Education Selective II - Credit Hours: 3.00
- Professional Selective I - Credit Hours: 3.00

16 Credits

Fall 4th Year

- ME 31500 - Heat And Mass Transfer
- Restricted Selective I - Credit Hours: 3.00
- Professional Selective II - Credit Hours: 3.00
- General Education Sel. III - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- ME 46300 - Engineering Design
- Restricted Selective II - Credit Hours: 3.00
- Professional Selective III - Credit Hours: 3.00
- Professional Selective IV - Credit Hours: 3.00
- General Education Selective IV - Credit Hours: 3.00

15 Credits

Note

128 semester credits required for Bachelor of Science degree.

2.0 Graduation GPA required for Bachelor of Science degree

2.0 ME Core 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

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

Minor

Energy Minor

(Minor Code = ENRY)

A minor in Energy is available to students in the College of Engineering and the Departments of Electrical and Computer Engineering Technology (ECET) and Mechanical Engineering Technology (MET). An Energy Minor will be granted on the completion of the following 18 cr hrs.

The core requirements (12 crs) are

with a grade of "C' or higher*

- ME 497G Energy in a Global Context (Required) - Credit Hours: 3.00
- POL 52000 - Special Topics In Public Policy

One of the following three courses

with a grade of "C' or higher*

- ME 30000 - Thermodynamics II (Engineering Students)
- MET 32000 - Applied Thermodynamics (Technology Students)
- CHE 21100 - Introductory Chemical Engineering Thermodynamics (Engineering Students)

And one of the following four courses

with a grade of "C' or higher*

- ECET 33100 - Generation And Transmission Of Electrical Power
- ME 43000 - Power Engineering (Open to All)
- MET 42200 - Power Plants And Energy Conversion (Technology Students)
- NUCL 40200 - Engineering Of Nuclear Power Systems (Engineering Students)

And any 6-credit hours of the following approved elective requirements*

Electrical Power and Distribution

- ECE 43200 - Elements Of Power System Engineering
- ECET 23100 - Electrical Power And Controls

- ECET 33100 - Generation And Transmission Of Electrical Power (if not taken for core)
- ECET 38100 - Electrical Distribution Systems
- ECET 49900 - Electrical Engineering Technology

Power Generation

- ME 43000 - Power Engineering (if not taken for core)
- MET 42200 - Power Plants And Energy Conversion (if not taken for core)
- NUCL 40200 - Engineering Of Nuclear Power Systems (if not taken for core)

Sustainable Energy Options

- ABE 58000 - Process Engineering Of Renewable Resources
- ABE 59100 - Special Topics Variable Title course in Biomass Feedstock Systems Engineering
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 597F Advanced Solar Energy Conversion - Credit Hours: 3.00
- ECE 595G Physics and Manufacturing of Solar Cells - Credit Hours: 3.00
- ME 597C Sustainable Energy Options and Analysis - Credit Hours: 3.00
- ME 597D Solar Energy - Credit Hours: 3.00
- ME 597I Bio-energy and Bio-fuels - Credit Hours: 3.00
- ME 597W Wind Energy and Turbines - Credit Hours: 3.00

Energy Utilization and Equipment

- CHE 34800 - Chemical Reaction Engineering
- ECET 581C Efficient Energy Systems - Credit Hours: 3.00
- ME 41800 - Engineering Of Environmental Systems And Equipment
- ME 43800 - Gas Turbine Engines
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel (Engineering Students)
- ME 51800 - Analysis Of Thermal Systems
- ME 52500 - Combustion
- ME 54000 - Internal Combustion Engines (Engineering Students)
- MET 42100 - Air Conditioning And Refrigeration
- MET 42600 - Internal Combustion Engines (Technology Students)
- MET 53000 - Facilities Engineering Technology

Energy Conversion and Storage

- NUCL 47000 - Fuel Cell Engineering
- NUCL 56300 - Direct Energy Conversion

- MSE 597E/ECE 595G Materials and Devices for Solid State Energy Conversion - Credit Hours: 3.00

Note

* Provided the 18 hrs are successfully completed with a grade of "C" or better in all of the courses, then an Energy Minor will be awarded. A grade of "C- or lower" in any of the minor courses is not adequate to fulfill the minor.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Energy Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the home School of the student.

No more than one substitution from either of the above two categories is acceptable for the Energy Minor.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

Engineering and Public Policy Minor

A minor in Engineering and Public Policy is available to students in the College of Engineering. An Engineering and Public Policy Minor will be granted on the completion of the following 21 cr hrs.

The core requirements (15 crs) are

with a grade of "C" or higher*

- CE 35500 - Engineering Environmental Sustainability
- ME 49200 - Technology And Values (Offered alternate spring sems.)
- PHIL 27000 - Biomedical Ethics
- POL 12000 - Introduction To Public Policy And Public Administration
- POL 22300 - Introduction To Environmental Policy

And 6-credit hours (3crs public policy and 3crs technical) from the following approved elective requirements*

Public Policy

- PHIL 29000 - Environmental Ethics
- POL 32700 - Global Green Politics (recommended)
- POL 42500 - Environmental Law And Politics
- POL 52300 - Environmental Politics And Public Policy

Technical

- ABE 58000 - Process Engineering Of Renewable Resources
- ABE 59100 - Special Topics
- CE 35000 - Introduction To Environmental And Ecological Engineering

- CE 35200 - Biological Principles Of Environmental Engineering
- CE 35300 - Physico-Chemical Principles Of Environmental Engineering
- CE 36100 - Transportation Engineering
- CE 45600 - Water And Wastewater Treatment
- CE 45700 - Air Pollution Control And Design
- CE 52400 - Legal Aspects In Engineering Practice
- ECE595G Physics and Manufacturing of Solar Cells - Credit Hours: 3.00
- ME 497G Energy in a Global Context - Credit Hours: 3.00
- ME 597C Sustainable Energy Options and Analysis - Credit Hours: 3.00
- ME 597D Solar Energy - Credit Hours: 3.00
- ME 597I Bio-energy and Bio-fuels - Credit Hours: 3.00
- ME 597W Wind Energy and Turbines - Credit Hours: 3.00
- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 500 Nuclear Engineering - Credit Hours: 3.00
- NUCL 50300 - Radioactive Waste Management

Note

* Provided the 21 hrs are successfully completed with a grade of "C" or better in all of the courses, then an Engineering and Public Policy Minor will be awarded. A grade of "C- or lower" in any of the minor courses is not adequate to fulfill the minor.

Generally all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Engineering and Public Policy Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the home School of the student.

No more than one substitution from either of the above two categories is acceptable for the Engineering and Public Policy Minor.

Engineering students interested in the Public Policy Minor are strongly encouraged to consider pursuing an internship with the **WISE Program** (Washington Internships for Students of Engineering). Go to http://www.wise-intern.org/ for details or google the Program name. Applications for consideration are typically due at the end of December of each year for the upcoming summer.

All students interested in the Public Policy Minor are strongly encouraged to consider pursuing an internship with the **White House Internship Program**. Go to http://www.whitehouse.gov/about/internships/ for details. Submission deadline for applications is typically in March of each year for the upcoming summer.

Students interested in the Engineering and Public Policy Minor are encouraged to become active in the **Purdue Student Pugwash** organization (http://web.ics.purdue.edu/~pugwash/). Pugwash is an organization started by Bertrand Russell, Albert Einstein, and several other eminent scientists committed to social responsibility in science and technology.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

Global Engineering Studies Minor

The Global Engineering Minor is designed for engineering students to be able to document significant demonstrated global experience and professional growth while at Purdue.

To qualify for this minor, students will participate in a comprehensive program integrating substantial on-campus and international (non-native) experiences. To earn the Minor, students must complete ENGR 20100 (Engineering in Global Context) as a core requirement. They will also select and complete: a) any TWO options from the first (Global Engineering Experience) category listed below, and any ONE option from the second (Other Global Experience) category, OR b) any THREE options from the first category (Global Engineering Experience). As a final core requirement, students must enroll in GEP 49500 (Global Engineering Portfolio).

Core Requirements

- ENGR 20100 - Engineering In Global Context - Completion of ENGR 20100, Engineering in Global Context (3 credit-hours, offered every Fall and Spring semester). Students are strongly encouraged to take this course within a year of declaring their intent to pursue the minor, and prior to any travel-based experiences (e.g., study, work, or research abroad). Students in the GEARE program may substitute ME 29700 (Global Engineering Orientation - GEARE) for this course.
- GEP 49500 - Successful completion of GEP 49500, Global Engineering Portfolio (1 credit-hour, offered every Fall and Spring semester). Involves preparation and presentation of final, culminating documentation of the student's experiences and competency development while fulfilling the minor requirements, such as in the form of an electronic portfolio or poster. Detailed instructions and guidelines related to this requirement are provided to students upon entry to the minor.

Elective Requirements

Global Engineering Experience - Choose any two

- **Engineering Term Abroad** - One term of study abroad with 6 or more credits of engineering-related coursework at a strategic global university partner. The list of strategic global university partners is maintained and continuously updated by the Global Engineering Program Team (GEPT).
- **Departmental Study Abroad** - Short-term study abroad experience offered in the College of Engineering, typically occurring during winter break, spring break, or Maymester. Must involve enrollment in 3 or more credits.
- **International Engineering Internship** - One international internship at a strategic global industry partner or under the auspices of a global organization, of duration two or more months. The list of the strategic industry partners and global organizations is maintained and continuously updated by the Global Engineering Program Team (GEPT).
- **Research Term Abroad** - One term of research abroad (e.g., as in the Hannover or Clausthal programs).
- **International Engineering Design Project** - Successful participation in at least 2 credits of project work with a global partner. The key objective is to enable and recognize the intense, personal experience of working with students and/or professionals from a different culture over an extended period of time on a project where the global context of the work is essential. As part of the global project work, students must submit a written technical report and/or give an oral presentation. Most students will meet this requirement through participation in Global Design Teams (GEP 10000 - GEP 40000), global EPICS (EPCS 10100-EPCS 41200), or a senior capstone project.

Other Global Experience - Choose one, OR select a third option from the GEE list

- **Traditional Study Abroad** - One term of any traditional study abroad program is acceptable for this option.
- **Language Proficiency** - Demonstrate proficiency in a second language up to the 202 course level in at least one non-native language. The 12 credit requirement include credits established by examination. The 12 credits of language courses will normally be completed before the student participates in study or professional practice experiences abroad.
- **Cultural Knowledge** - Demonstrate proficiency in an understanding of cultures by completing 12 credits of coursework in culture-oriented courses. The 12 credits can include credits established by examination, but at least 6 of the 12 credits must be taken at Purdue-West Lafayette. A list of approved Cultural Knowledge courses appears as Appendix A below, and will be reviewed and updated annually to reflect ongoing changes in course availability.

Other Requirements

- **Grades** - A grade of "C" or better in all courses that are counted toward the minor.

Appendix A

Cultural Knowledge Courses

African

- HIST 21000 - The Making Of Modern Africa
- HIST 34100 - History Of Africa South Of The Sahara
- HIST 34200 - Africa And The West
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 36101 - Violence, War, And Militarism In Modern Africa
- HIST 43000 - Women In African History
- HIST 44100 - Africa In The Twentieth Century

Arabic

- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 33400 - North African Literature And Culture
- HIST 24300 - South Asian History And Civilizations
- HIST 24500 - Introduction To The Middle East History And Culture
- HIST 24600 - Modern Middle East And North Africa
- HIST 36000 - Gender In Middle East History
- HIST 45500 - Modern Iraq

Chinese

- CHNS 28000 - Topics in Chinese Civilization and Culture
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 43900 - Communist China
- HIST 24100 - East Asia In The Modern World
- HIST 35900 - Gender In East Asian History

Classics

- CLCS 33100 - Survey Of Latin Literature In Translation
- CLCS 33800 - The Tragic Vision
- CLCS 33900 - Literature And The Law
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 48000 - Potters And Society In Antiquity
- GREK 10200 - Ancient Greek Level II
- GREK 20200 - Ancient Greek Level IV
- GREK 44600 - Greek Historians
- LATN 44300 - Roman Satire

European

- HIST 10200 - Introduction To The Ancient World
- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 31200 - The Crusades
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31800 - A History Of The Christian Church And The Expansion Of Christianity II
- HIST 32000 - The World Of Charlemagne
- HIST 32200 - Monarchy: Its Rise And Fall
- HIST 32700 - The Habsburg Legacy: Central Europe, 1500-2000
- HIST 32800 - History Of Women In Renaissance Europe
- HIST 32900 - History Of Women In Modern Europe
- HIST 33000 - History Of The British Empire And Commonwealth, 1783 To 1960
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 40300 - Europe In The Reformation
- HIST 40400 - Kings And Philosophers: Europe 1618-1789
- HIST 40600 - Rebels And Romantics: Europe 1815-1870
- HIST 40800 - Dictatorship And Democracy: Europe 1919-1945
- HIST 41100 - The Four Horsemen Ride: Crisis And Change In Europe 1300-1648
- HIST 41200 - The Cultural History Of The Middle Ages
- HIST 41300 - Modern European Imperialism Repression and Resistance
- HIST 41800 - European Society And Culture 1450-1800

French

- FR 33000 - French Cinema
- HIST 32400 - Modern France
- HIST 40500 - The French Revolution And Napoleon

German

- GER 28000 - German Special Topics
- HIST 32300 - German History
- HIST 42300 - Advanced Topics In Modern Germany

Hebrew

- HEBR 28000 - Modern Israel: Cinema, Literature, Politics And History
- HEBR 38500 - The Holocaust In Modern Hebrew Literature
- HIST 39001 - Jews In The Modern World: A Survey Of Modern Jewish Society, Culture, And Politics

Italian

- ITAL 23100 - Dante's Divine Comedy
- ITAL 28100 - The Italian Renaissance And Its Impact On Western Civilization
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- ITAL 33500 - Italian-American Cinema
- ITAL 38000 - Italian Culture And Civilization

Japanese

- JPNS 28000 - Introduction To Modern Japanese Civilization
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan

Latin American

- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)

Portuguese

- PTGS 33000 - Brazilian, Portuguese, And African Cinema

Russian

- RUSS 33000 - Russian And East European Cinema
- HIST 39100 - History Of Russian Popular Entertainment
- RUSS 28100 - Post-Soviet Experiences
- RUSS 28900 - Russia: Yesterday, Today, and Tomorrow
- HIST 43800 - History of Russia from Medieval Timas to 1861
- HIST 44000 - History of Russia from 1861 to the Present

Spanish

- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation
- SPAN 33000 - Spanish And Latin American Cinema
- HIST 42700 - History Of Spain And Portugal
- HIST 47200 - History Of Mexico

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

Intellectual Property Law for Engineers Minor

A minor in Intellectual Property Law is available to students in the College of Engineering. An Intellectual Property Law Minor will be granted on the completion of the following 19 cr hrs.

The core requirements (13 crs) are

with a grade of "C" or higher*

- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ME 49200 - Technology And Values
- ME 55400 - Intellectual Property For Engineers
- POL 46000 - Judicial Politics **
- ENGL 42100 - Technical Writing

Note

** Students with knowledge of American Government from high school may seek a waiver of the POL 10100 prerequisite. This exception is not guaranteed, but can be sought from the instructor of POL 46000.

And any 6-credit hours (3cr of legal and 3cr of technical courses) from the following approved elective requirements*

Law

- POL 10100 - American Government And Politics
- POL 221 Introduction to Science and Government (Recommended) - Credit Hours: 3.00
- POL 42800 - The Politics Of Regulation (Recommended)
- POL 46100 - Constitutional Law I (Recommended)
- POL 46200 - Constitutional Law II

Technical

- IE 37000 - Manufacturing Processes I
- ME 36300 - Principles And Practices Of Manufacturing Processes
- ME 44400 - Computer-Aided Design And Prototyping
- ME 45200 - Machine Design II
- ME 47300 - Engineering Design Using Modern Materials
- ME 47500 - Automatic Control Systems
- ME 55300 - Product And Process Design

- ME 55700 - Design For Manufacturability
- ME 56000 - Kinematics
- ME 56100 - Optimal Design: Theory With Practice
- ME 57000 - Machine Design
- ME 57100 - Reliability Based Design
- ME 57200 - Analysis And Design Of Robotic Manipulators
- ME 57500 - Theory And Design Of Control Systems
- ME 57600 - Computer Control Of Manufacturing Processes
- ME 58500 - Instrumentation For Engineering Measurements
- ME 58600 - Microprocessors In Electromechanical Systems
- ME 58800 - Mechatronics - Integrated Design Of Electro-Mechanical Systems

Note

* Provided the 19 hrs are successfully completed with a grade of "C" or better in all of the courses, then an Intellectual Property Law Minor will be awarded. A grade of "C- or lower" in any of the minor courses is not adequate to fulfill the minor.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Intellectual Property Law Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, or
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the home School of the student.

No more than one substitution from either of the above two categories is acceptable for the Intellectual Property Law Minor.

Advising

Students interested in pursuing a career in a Intellectual Property Law are strongly recommend to contact Mark Janis (BS ChE 1986, Purdue University; Professor of Law and Ira C. Batman Faculty Fellow, Indiana University Maurer School of Law 1989, mdjanis@indiana.edu; http://info.law.indiana.edu/sb/page/normal/1554.html) early in their academic program to discuss specific Schools of interest, the applications process, the interview process, and the admission exam (LSATS, etc.)

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

Manufacturing Minor

A minor in Manufacturing is available to students in the College of Engineering and School of Technology. A Manufacturing Minor will be granted on the completion of the following 18cr hrs.

The core requirements (9crs) are

with a grade of "C" or better in each course*.

- MSE 23000 - Structure And Properties Of Materials
- MFET 30000 - Applications Of Automation In Manufacturing

And one of the following two courses

with a grade of "C" or better in each course*.

- IE 37000 - Manufacturing Processes I
- ME 36300 - Principles And Practices Of Manufacturing Processes

And any 9-credit hours of the following approved elective requirements*

Manufacturing Processes, Systems and Planning

- ABE 50100 - Welding Engineering
- IE 47000 - Manufacturing Processes II
- IE 572 Precision Mfg Systems - Credit Hours: 3.00
- ME 55700 - Design For Manufacturability
- MFET 44600 - Advanced Manufacturing Operations

Automated Manufacturing and Integration

- IE 57400 - Industrial Robotics And Flexible Assembly
- ME 57600 - Computer Control Of Manufacturing Processes
- MET 28400 - Introduction To Industrial Controls
- MFET 34800 - Industrial Robotics And Motion Control
- MFET 37400 - Manufacturing Integration I

Advanced Manufacturing

- ME 50700 - Laser Processing
- MET 44600 - Micro And Nano Manufacturing
- MET 49000 - Special Topics In MET

Materials Processing and Properties

- MSE 240 Processing and Properties of Materials - Credit Hours: 3.00

Computer-Aided Design in Manufacturing

- IE 575 Computer-Aided Mfg I - Credit Hours: 3.00
- ME 44400 - Computer-Aided Design And Prototyping
- MFET 34200 - Advanced Manufacturing Processes And Practices

Quality Control

- IE 53000 - Quality Control
- MET 45100 - Manufacturing Quality Control

- IET 411 Apps of Lean Mfg & 6-σ Methodologies - Credit Hours: 3.00

Note

* Provided the 18cr hrs are successfully completed with a grade of "C" or better in all of the courses, then a Manufacturing Minor will be awarded. A grade of "C-" in any of the minor courses is not adequate to fulfill the minor.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Manufacturing Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the home School of the student.

No more than one substitution from either of the above two categories is acceptable to be eligible for the Manufacturing Minor.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

Mechanical Engineering Minor

(Minor Code = MECH)

A minor in Mechanical Engineering is available to students in the Schools of Engineering, students in Industrial Management - Engineering (664), or in the Physics Department. A ME Minor will be granted on the completion of the following 22 hrs and the required prerequisites*.

The core requirements are

with a grade of "C" or better in each course.

- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- ME 27400 - Basic Mechanics II
- NUCL 27300 - Mechanics Of Materials
- ECE 20100 - Linear Circuit Analysis I

And one of the following 7-credit hour elective requirements**

- ME 30900 - Fluid Mechanics
- ME 30000 - Thermodynamics II
- MSE 23000 - Structure And Properties Of Materials
- ME 35200 - Machine Design I
- ECE 20700 - Electronic Measurement Techniques
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II

Note

Provided the 22 hrs are successfully completed with a grade of "C" or better in all of the courses, then a ME Minor will be awarded.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the ME Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the School of Mechanical Engineering.

No more than one substitution from either of the above two categories is acceptable to be eligible for the ME Minor.

*Minimum Prerequisites and/or Corequisites include: MA 16500, MA 16600, MA 26100, MA 26500 (or MA 26200), MA 26600 (or MA 30300); PHYS 15200, PHYS 24100 (or 251) (totals 25 hours)

** To be eligible to enroll in upper-level (300 level or higher) ME courses, students must have achieved a grade of "C" or better on all of the core requirements.

Sustainable Engineering Minor

(Minor Code = SUSE)

A Sustainable Engineering Minor is available to students in the College of Engineering. The minor will be granted on the completion of the following 18 cr hrs.

The core requirements (12 crs) are

- CE 35500 - Engineering Environmental Sustainability
- EEE 43000 - Industrial Ecology And Life Cycle Analysis
- AGEC 40600 - Natural Resource And Environmental Economics
- POL 32700 - Global Green Politics

And 6-credit hours (3crs public policy and 3crs technical) from the following approved elective requirements*

Public Policy

- PHIL 29000 - Environmental Ethics
- POL 22300 - Introduction To Environmental Policy
- POL 42500 - Environmental Law And Politics
- POL 52300 - Environmental Politics And Public Policy

Sustainable Energy Options

- ABE 58000 - Process Engineering Of Renewable Resources
- ABE 59100 - Special Topics Variable Title in Biomass Feedstock Systems Engineering

- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering Variable Title course in Advanced Solar Energy Conversion
- ECE 59500 - Selected Topics In Electrical Engineering Variable Title in Physics and Manufacturing of Solar Cells
- ME 59700 - Advanced Mechanical Engineering Projects I
  Variable Title course worth 3 credits each, with the following topics:
- Bio-energy and Bio-fuels
- Solar Energy
- Sustainable Energy Options and Analysis
- Wind Energy and Turbines

Sustainable Design and Construction

- AD 39700 - Sustainability In The Built Environment
- BCM 41900 - Sustainable Construction
- ME 55300 - Product And Process Design
- CE 59700 - Civil Engineering Projects Variable Title course in Sustainable Building Design Construction and Operation
- ME 59700 - Advanced Mechanical Engineering Projects I Variable Title course in Sustainable Design and Manufacturing

Energy Utilization and Equipment

- ECET 581C Efficient Energy Systems - Credit Hours: 3.00
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel

Agricultural/Environmental Sustainability

- AGRY 57500 - Variable Title course in Soil and Nutrient Management
- ASM 33600 - Environmental Systems Management
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- CE 59700 - Civil Engineering Projects Variable Title in Water Resources Sustainability

Energy Conversion and Storage

- NUCL 47000 - Fuel Cell Engineering
- NUCL 56300 - Direct Energy Conversion

- MSE 597E Materials and Devices for Solid State Energy Conversion - Credit Hours: 3.00 or
- ECE 595G Materials and Devices for Solid State Energy Conversion - Credit Hours: 3.00

Note

* Provided the 18 hrs are successfully completed with a grade of "C" or better in all of the courses, then a Sustainable Engineering Minor will be awarded. A grade of "C- or lower" in any of the minor courses is not adequate to fulfill the minor.

Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Sustainable Engineering Minor. The only exceptions to this rule are as follows:

1. One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
2. One equivalent Purdue substitution may be used if it is deemed equivalent to the prescribed minor course and acceptable by the home School of the student.

No more than one substitution from either of the above two categories is acceptable for the Sustainable Engineering Minor.

Finally, as new courses are developed on campus, interested students can request a review by the Undergraduate Chairs Committee of any new courses with substantial engineering sustainability emphasis to be considered as elective options for the minor. Please contact Jim Jones (jonesjd@purdue.edu) in ME to submit your request.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

School of Nuclear Engineering

An Overview

Nuclear engineering is firmly grounded in the understanding and application of modern physics. It has demonstrated vast potential for growth in power generation, medicine, industrial processes, plasmas, space technologies, and national defense.

Nuclear engineers at Purdue contribute to such advanced technologies as fission and fusion power generators, new medical technologies and procedures, improved food safety, advanced materials processing, advanced imaging, and the safe treatment and disposal of spent nuclear fuel.

Students experience the small-classroom feel because Nuclear Engineering has approximately 110 undergraduate students and 12 professors.

Indiana's first and only nuclear reactor has its home in Purdue University's Electrical Engineering Building. It headlines field trips for high-school juniors and seniors who participate in demonstrations and experiments.

Faculty

https://engineering.purdue.edu/NE/People/faculty.html

Contact Information

Student Services Office:
School of Nuclear Engineering
Purdue University
400 Central Drive, Room 127
West Lafayette, IN 47907-2017
Phone: (765) 494-5749
Fax: (765) 494-9570

General Contact Information:
School of Nuclear Engineering
Purdue University
400 Central Drive, Room 140
West Lafayette, IN 47907-2017
Phone: (765) 494-5739
Fax: (765) 494-9570

Graduate Information

For Graduate Information please see Nuclear Engineering Graduate Program Information.

Baccalaureate

Nuclear Engineering, BSNE

About the Program

Nuclear engineering is firmly grounded in the understanding and application of modern physics. It has demonstrated vast potential for growth in power generation, medicine, industrial processes, plasmas, space technologies, and national defense.

Nuclear engineers at Purdue contribute to such advanced technologies as fission and fusion power generators, new medical technologies and procedures, improved food safety, advanced materials processing, advanced imaging, and the safe treatment and disposal of spent nuclear fuel.

Students experience the small-classroom feel because Nuclear Engineering has approximately 110 undergraduate students and 12 professors.

Indiana's first and only nuclear reactor has its home in Purdue University's Electrical Engineering Building. It headlines field trips for high-school juniors and seniors who participate in demonstrations and experiments.

Summary of Program Requirements

The Summary of Program Requirements for Nuclear Engineering is a comprehensive list of those categories which a student must fulfill in order to earn their degree. Unlike the full Detailed Program Requirements listed below, complete lists of selectives for any given category are not shown. These summaries are intended to be printer-friendly and less expansive in detail.

Detailed Program Requirements

Please see below for detailed program requirements and possible selective fulfillments.

code-BS-Nucl
Code-XXX
131 Credits for Graduation

Nuclear Engineering Major Courses (53 credits)

(https://engineering.purdue.edu/NE/Academics/Ugradman2010.pdf)

Required NUCL Courses (41 credits)

- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I
- NUCL 27300 - Mechanics Of Materials
- NUCL 29800 - Sophomore Seminar
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
- NUCL 31000 - Introduction To Neutron Physics
- NUCL 44900 - Senior Design Proposal
- NUCL 49800 - Senior Seminar
- ME 20000 - Thermodynamics I
- ME 27400 - Basic Mechanics II
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 32000 - Introduction To Materials For Nuclear Applications
- NUCL 32500 - Nuclear Materials Laboratory
- NUCL 35000 - Nuclear Thermal-Hydraulics I
- NUCL 35100 - Nuclear Thermal-Hydraulics II
- NUCL 35500 - Nuclear Thermohydraulics Laboratory
- NUCL 39800 - Junior Seminar
- NUCL 45000 - Design In Nuclear Engineering

- NUCL 51000 - Nuclear Reactor Theory I or
- NUCL 42000 - Credit Hours: 3.00 ♦

- ME 27000 - Basic Mechanics I
- ECE 20100 - Linear Circuit Analysis I

NE Technical Electives - (15 credits)

(https://engineering.purdue.edu/NE/Academics/Undergrad/tech_electives.html)

- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- Technical Elective IV - Credit Hours: 3.00
- Technical Elective V - Credit Hours: 3.00

Other Departmental/Program Course Requirements (48 credits)

- MA 16500 - Analytic Geometry And Calculus I (satisfies FYE requirement) or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies FYE requirement)

- MA 16600 - Analytic Geometry And Calculus II (satisfies FYE requirement) or
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies FYE requirement)

- CHM 11500 - General Chemistry

- CHM 11600 - General Chemistry
- ENGR 13100 - Transforming Ideas To Innovation I (satisfies FYE requirement)
- ENGR 13200 - Transforming Ideas To Innovation II (satisfies FYE requirement)
- ENGL 10600 - First-Year Composition (satisfies FYE requirement)
- COM 11400 - Fundamentals Of Speech Communication (satisfies FYE requirement)
- PHYS 17200 - Modern Mechanics (satisfies FYE requirement)
- CS 15900 - Programming Applications For Engineers (satisfies FYE requirement)
- MA 26100 - Multivariate Calculus (satisfies Math and physics requirement)
- MA 26500 - Linear Algebra (satisfies Math and physics requirement)
- MA 26600 - Ordinary Differential Equations (satisfies Math and physics requirement)
- PHYS 24100 - Electricity And Optics (satisfies Math and physics requirement)

Note

NOTE: COM 11400 is counted separately from the 18 credits of Gen Ed requirement. Therefore the Gen Ed requirement can be considered to be 18 + 3 credits = 21 when including COM 11400

General Electives (18 credits)

(https://engineering.purdue.edu/NE/Academics/Ugradman2010.pdf) (9 in Social sciences and 9 In Humanities)

- G.E.-I - Credit Hours: 3.00
- G.E.-II - Credit Hours: 3.00
- G.E.-III - Credit Hours: 3.00
- G.E.-IV - Credit Hours: 3.00
- G.E.-V - Credit Hours: 3.00
- G.E.-VI - 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

Program Requirements

https://engineering.purdue.edu/NE/Academics/Ugradman2010.pdf

Fall 1st Year

- MA 16500 - Analytic Geometry And Calculus I
- CHM 11500 - General Chemistry
- ENGL 10600 - First-Year Composition
- ENGR 13100 - Transforming Ideas To Innovation I
- PHYS 17200 - Modern Mechanics

18 Credits

Spring 1st Year

- MA 16600 - Analytic Geometry And Calculus II
- CHM 11600 - General Chemistry
- CS 15900 - Programming Applications For Engineers
- ENGR 13200 - Transforming Ideas To Innovation II
- COM 11400 - Fundamentals Of Speech Communication

16 Credits

Fall 2nd Year

- NUCL 29800 - Sophomore Seminar
- General Elective I - Credit Hours: 3.00
- MA 26100 - Multivariate Calculus
- NUCL 20000 - Introduction to Nuclear Engineering
- ME 27000 - Basic Mechanics I
- ME 20000 - Thermodynamics I

16 Credits

Spring 2nd Year

- NUCL 29800 - Sophomore Seminar
- MA 26500 - Linear Algebra
- NUCL 27300 - Mechanics Of Materials
- PHYS 24100 - Electricity And Optics
- General Elective II - Credit Hours: 3.00
- ME 27400 - Basic Mechanics II
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I

18 Credits

Fall 3rd Year

- NUCL 39800 - Junior Seminar
- NUCL 32500 - Nuclear Materials Laboratory

- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 32000 - Introduction To Materials For Nuclear Applications
- MA 26600 - Ordinary Differential Equations
- General Elective III - Credit Hours: 3.00
- NUCL 35000 - Nuclear Thermal-Hydraulics I

18 Credits

Spring 3rd Year

- NUCL 39800 - Junior Seminar
- NUCL 31000 - Introduction To Neutron Physics
- NUCL 35100 - Nuclear Thermal-Hydraulics II
- NUCL 35500 - Nuclear Thermohydraulics Laboratory
- Math Elective (MA 300+)
- Technical Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

18 Credits

Fall 4th Year

- Technical Elective - Credit Hours: 3.00
- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 44900 - Senior Design Proposal
- General Elective IV - Credit Hours: 3.00
- NUCL 49800 - Senior Seminar
- NUCL 51000 - Nuclear Reactor Theory I
- Technical Elective - Credit Hours: 3.00

18 Credits

Spring 4th Year

- ECE 20100 - Linear Circuit Analysis I
- NUCL 45000 - Design In Nuclear Engineering
- NUCL 49800 - Senior Seminar
- Technical Elective - Credit Hours: 3.00
- General Elective V - Credit Hours: 3.00
- General Elective VI - Credit Hours: 3.00

15 Credits

Note

131 semester credits required for Bachelor of Engineering degree.
Students must have a graduation index of 2.0

Degree Requirements

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

Degree Works 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.

Expired Course

Any course without a link to its description is one that has been expired. However, this course could fulfill the degree requirement historically.

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