

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 10 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 Departments

First-Year Engineering	Electrical and Computer Engineering
School of Aeronautics and Astronautics	Environmental & Ecological Engineering
Agricultural & Biological Engineering	Industrial Engineering
Weldon School of Biomedical Engineering	Interdisciplinary Engineering Studies
School of Chemical Engineering	Materials Engineering
Lyles School of Civil Engineering	Mechanical Engineering
Division of Construction Engineering and Management	Multidisciplinary Engineering

Admissions (website)

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. In the FYE program, students complete foundational coursework in math, science, engineering, and communications (oral and written). After this common first year, students choose their discipline of engineering and start to follow the plan of study of a particular degree program. The mission of this student-oriented program is to advise, prepare, and retain outstanding students for degree programs in Purdue's College of Engineering.

See First-Year Engineering for more information.

Advising Information

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

Contact Information

Office of the Dean of Engineering

Purdue University
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701 West Stadium Ave.
West Lafayette, IN 47907-2045
E-mail: dean.of.engineering@purdue.edu
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For additional faculty and staff contact information, consult our directory.

College of Engineering Administration

Systems Certificate information

Minor

Global Engineering Studies Minor

The Global Engineering Studies 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, you will participate in a comprehensive program integrating on-campus and international/global experiences.

Requirements for the Minor

- You must complete a minimum of three (3) credit-hours of global engineering-related coursework plus one (1) credit-hour of ENGR 49700 - GEARE OR Global Engineering re-entry/Minor capstone course.
- Students completing a signature LEAP (Long-term Engineering Abroad Program) or the GEARE program are only required to complete a sequence of three, 1-credit courses as explained below.
- In addition, you will complete a) any TWO options from the Global Engineering Experience (GEE) category listed below, and any ONE option from the second category (Other Global Experience); OR b) any THREE options from the GEE category.

Core Requirements

Choose from the following options:

GEARE Students

- ENGR 29701 - Global Engineering Orientation
- ENGR 39700 - Global Engineering Experience
- ENGR 49700 - Global Engineering Re-Entry

NON-GEARE Students

- ENGR 29701 - Global Engineering Orientation - enroll in the class section related to your LEAP(Asia Pacific or Latin America/Spain)
- COM 30301 - Mentored Intercultural Communication Experience - completed while abroad
- ENGR 49700 - Global Engineering Re-Entry - **for all non-GEARE students without a signature LEAP**. This course involves preparation and presentation of final, culminating documentation of your global experiences and competency development while fulfilling the Minor requirements. You will create an electronic global engineering portfolio or a poster.

Global Engineering Experiences (GEE) - Choose two

- LEAP: Long-Term Engineering Abroad Program - One term of Purdue-approved study abroad program with 6 or more credits of engineering-related coursework at a strategic global university partner. NOTE: the signature LEAPs are showcased on this page and include East Asia, Latin America and Spain programs.

- STEP-Abroad: Short-Term Engineering Program Abroad - A short-term study abroad experience offered by the College of Engineering, typically occurring during winter break, spring break, or Maymester. The program must involve enrollment in three (3) or more engineering credits.
- SURGE: Summer Undergraduate Research in Global Engineering - The duration of these programs is usually two or more months and they take place at strategic university partners worldwide.
- International Engineering Internship - An international internship at a strategic global industry partner or under the auspices of a global organization, of duration two or more months.
- GEARE 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

- Non-Engineering Study Abroad Experiences - participating in any traditional Purdue-approved study abroad program. These are programs offered by a different college at Purdue, for example, a summer study abroad program in Madrid offered by the Spanish department to earn Spanish credits and learn about the culture.
- Language Proficiency - demonstrate proficiency in a second language up to the 202 course level in at least one non-native language. The 12 credit-hour requirement includes credits established by examination. This requirement will normally be completed before you participate in study or professional practice experiences abroad. (a total of 3 credit-hours of language must be taken at the Purdue-WL campus)
- Cultural Knowledge - demonstrate proficiency in an understanding of cultures by completing 12 credits of coursework in culture-oriented courses (see Appendix A below). A total of 6 credit-hours can include credits established by examination. Note: a minimum of 6 credit-hours must be taken at the Purdue-WL campus.
- Language and Cultural Knowledge combo - demonstrate proficiency in an understanding of cultures by completing 12 credits of coursework in a second, non-native language and/or in culture-oriented courses (see Appendix A below). For instance, you can complete 6 credit-hours of a second language and 6 credit-hours of a culture-oriented course; or 9 credit-hours of a language, plus 3 credit-hours of a culture-oriented course. (a minimum of 6 credit-hours must be taken at the Purdue-WL campus)

Appendix A: Cultural Knowledge Courses

NOTE: This is a representative rather than complete list of Cultural Knowledge courses. If you have questions about whether other courses qualify contact gep@purdue.edu.

African

- HIST 21000 - The Making Of Modern Africa
- HIST 44100 - Africa In The Twentieth Century

Arabic

- ARAB 23900 - Arab Women Writers

- ARAB 28000 - Arabic Culture
- HIST 24300 - South Asian History And Civilizations
- HIST 24600 - Modern Middle East And North Africa

Chinese

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

Classics

- GREK 10200 - Ancient Greek Level II
- GREK 20200 - Ancient Greek Level IV

European

- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 32900 - History Of Women In Modern Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 40300 - Europe In The Reformation
- HIST 41300 - Modern European Imperialism: Repression and Resistance

French

- FR 33000 - French Cinema
- HIST 40500 - The French Revolution And Napoleon

German

- GER 28000 - German Special Topics
- HIST 32300 - German History
- GER 32300 - German Level VI: Science And Engineering

Italian

- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- ITAL 33500 - Italian-American Cinema

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)

Russian

- RUSS 33000 - Russian And East European Cinema

Spanish

- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 39800 - Special Topics In Spanish

Notes

- A grade of "C" or better in all courses that are counted toward the minor.
- You are strongly encouraged to declare your intent to pursue the Minor during your second year at Purdue, and start completing some of the related coursework prior to any travel-based experiences (e.g., study, work, or research abroad). Detailed instructions and guidelines will be provided to you upon entry to the Minor. For questions about the minor, please contact gep@purdue.edu.

Disclaimer

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

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Innovation and Transformational Change Minor

Choose your own path to obtain the Minor in Innovation and Transformational Change. Achieving the Minor requires 18 credits drawn from three categories of classes: Core Courses, Selectives, and Electives, with the latter two categories offering numerous opportunities to ensure you are linking your new knowledge and skills to problems you care about.

Requirements for the Minor (18 credits)

Required Courses (6 credits)

The CORE COURSES are required, and bookend the Minor experience providing an introduction to problem framing, solution space development, innovation, and design fundamentals at the onset of the program, and an in-depth experiential learning opportunity to apply your skills to a real grand challenge problem as you prepare to graduate.

- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 49001 - Breakthrough Thinking For Complex Challenges

Selective Courses (9 credits)

SELECTIVES provide an opportunity for you to develop mindsets and capabilities that are critical to driving the innovative change necessary to address complex socio-technical challenges. You choose one course in each of three key areas to build your background:

Design Holistic Solutions (3 credits)

Employ systems thinking and rigorous innovation processes to DESIGN HOLISTIC SOLUTIONS.

- AAE 56000 - System-Of-Systems Modeling And Analysis
- EEE 25000 - Environmental, Ecological, and Engineering Systems
- IE 49000 - Special Topics In Industrial Engineering (Imagine, Model, and Make)
- ME 55300 - Product And Process Design
- TECH 53300 - Design Theory And Technology
- TLI 52000 - Foundations Of Innovation Studies
- CE 39800 - Introduction To Civil Engineering Systems Design
- EPCS (Any Level) - Engineering Projects in Community Service - Credit Hours: 3.00

Motivate Change (3 credits)

Help realize a shift in paradigm by MOTIVATING CHANGE.

- COM 44400 - Introduction To Communication And Social Entrepreneurship
- COM 21000 - Debating Public Issues
- COM 31800 - Principles Of Persuasion
- COM 30300 - Intercultural Communication
- CSR 33100 - Consumer Behavior
- ECON 47100 - Behavioral Economics
- MGMT 42710 - Digital Marketing Strategy
- MGMT 44362 - Leadership & Organizational Change
- OBHR 33000 - Introduction To Organizational Behavior
- PHIL 22100 - Introduction To Philosophy Of Science
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- TLI 25400 - Leading Change In Technology Organizations
- TLI 31400 - Leading Innovation In Organizations
- TLI 35600 - Global Technology Leadership

Develop Strategies for Financial Sustainability (3 credits)

Ensure your ideas are viable by DEVELOPING STRATEGIES FOR FINANCIAL SUSTAINABILITY.

- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ENTR 31000 - Marketing And Management For New Ventures
- IET 45100 - Monetary Analysis For Industrial Decisions
- MGMT 30400 - Introduction To Financial Management
- MGMT 35200 - Strategic Management
- MGMT 42310 - Global Marketing Management

- MGMT 48400 - Management Of Entrepreneurial Ventures
- POL 23500 - International Relations Among Rich And Poor Nations
- SOC 31600 - Industry And Society
- SOC 33900 - Introduction To The Sociology Of Developing Nations

Electives Courses: (3 credits)

ELECTIVES enable you to further contextualize your minor by gaining depth in an area that will enhance your potential to drive innovation and transformational change in industry, academia, or the non-profit sector. Accumulate 3 credits from any of the following areas:

Research Methods

Learn versatile RESEARCH METHODS to gain insight into human behavior

- AGECE 45100 - Applied Econometrics
- ANTH 38000 - Using Anthropology In The World
- ANTH 38500 - Community Engagement In Anthropology
- ANTH 41800 - Field Methods In Cultural Anthropology
- ANTH 59200 - Selected Topics In Anthropology (Evidence, Power, Politics: Working in Expert & Technical Cultures)
- COM 32500 - Interviewing: Principles And Practice
- ECON 36000 - Econometrics
- MGMT 42110 - Marketing Analytics
- SOC 38300 - Introduction To Research Methods In Sociology

Grand Challenges

Gain a deeper understanding of the cultural and social aspects of GRAND CHALLENGES such as: Education, Energy, the Environment, Food, and Health

General

- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 34000 - International Economic Development
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
- ANTH 57500 - Economic Anthropology
- ANTH 32700 - Environment And Culture
- ANTH 20400 - Introduction To Biological Anthropology And Human Evolution
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ENE 55300 - Introduction To Globalization And Engineering
- ENGR 31000 - Engineering In Global Context
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- ME 49200 - Technology And Values
- HSOP 55600 - Healthcare Economics And Public Policy
- SOC 57200 - Comparative Healthcare Systems

Education

- EDCI 56500 - Principles Of Adult Education
- EDST 51200 - Foundations Of Educational Policy
- EDST 51400 - Economics Of Education
- EDPS 30102 - Social-Emotional Aspects Of Learning In Diverse Environments

Environment

- AGECE 52500 - Environmental Policy Analysis
- BCM 41900 - Sustainable Construction
- BCM 51000 - Topics In Environmentally Sustainable Construction, Design And Development
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- CE 35500 - Engineering Environmental Sustainability
- EAPS 36000 - Great Issues In Science And Society
- EAPS 32700 - Climate, Science And Society
- EEE 35500 - Engineering Environmental Sustainability
- FNR 30200 - Global Sustainability Issues
- FNR 48800 - Global Environmental Issues
- HIST 39400 - Environmental History Of The United States
- HTM 37000 - Sustainable Tourism And Responsible Travel
- PHIL 29000 - Environmental Ethics
- POL 22300 - Introduction To Environmental Policy
- POL 32300 - Comparative Environmental Policy
- POL 32700 - Global Green Politics
- POL 42300 - International Environmental Policy

Energy

- EAPS 30100 - Oil !
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel

Food

- AGECE 25000 - Economic Geography Of World Food And Resources
- AGECE 41000 - Agricultural Policy
- AGECE 52800 - Global Change And The Challenge Of Sustainably Feeding A Growing Planet

Health

- ANTH 34000 - Global Perspectives On Health
- BIOL 31200 - Great Issues Genomics And Society
- HK 36500 - Principles Of Community Health Promotion
- HK 58100 - International Health

Notes:

- Achieve a GPA of at least 2.0 across the courses pursued for the minor

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First-Year Engineering

Pre-Program

First-Year Engineering

About the Program

The First-Year Engineering (FYE) Program, at the School of Engineering Education, is the entry point for all beginning engineering students at Purdue. In the FYE program, students complete foundational coursework in math, science, engineering, and communications (oral and written). After this common first year, students choose their discipline of engineering and start to follow the plan of study of a particular degree program. The mission of this student-oriented program is to advise, prepare, and retain outstanding students for degree programs in Purdue's College of Engineering.

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

Requirements for First-Year Engineering (FYE)

30+ Credits Required

To complete the First-Year Engineering (FYE) program and be eligible for consideration for entry into an Engineering degree program, a student must comply with the grade average requirement and complete the following required courses:

Requirement #1: Intro to Engineering I (2-4 credits)

One of the following course options:

- ENGR 13100 - Transforming Ideas To Innovation I ♦ or
- ENGR 14100 - Honors Creativity And Innovation In Engineering Design I ♦ or
- ENGR 16100 - Honors Introduction To Innovation And The Physical Science Of Engineering Design I ♦
OR
- EPCS 11100 - First Year Participation In EPICS I ♦ and

- EPCS 12100 - First Year Participation In EPICS II ♦

Requirement #2: Intro to Engineering II (2-4 credits)

One of the following course options:

- ENGR 13200 - Transforming Ideas To Innovation II ♦ or
- ENGR 13300 - Transforming Ideas To Innovation, EPICS ♦ or
- ENGR 14200 - Honors Creativity And Innovation In Engineering Design II ♦ or
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II ♦

Requirement #3: Calculus I (4-5 credits)

One of the following course options:

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning for core*) or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning for core*)

Requirement #4: Calculus II (4-5 credits)

One of the following course options:

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

Requirement #5: Chemistry I (4-6 credits)

One of the following course options:

- CHM 11500 - General Chemistry ♦ (*satisfies Science for core*)
OR
- CHM 11100 - General Chemistry ♦ (*satisfies Science for core*) and
- CHM 11200 - General Chemistry ♦ (*satisfies Science for core*)

Requirement #6: Physics (4 credits)

One of the following course options:

- PHYS 17200 - Modern Mechanics ♦ (*satisfies Science for core*)
OR
- ENGR 16100 - Honors Introduction To Innovation And The Physical Science Of Engineering Design I ♦ (*satisfies Science for core*) and
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II ♦ (*satisfies Science for core*)

Requirement #7: Science Selective (3-4 credits)

One of the following course options:

- CHM 11600 - General Chemistry or ♦ (*satisfies Science for core*) or
- CS 15900 - C Programming or ♦ or
- BIOL 11000 - Fundamentals Of Biology I ♦ (*satisfies Science for core*) or
- BIOL 11100 - Fundamentals Of Biology II or ♦ (*satisfies Science for core*) or
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦ (*satisfies Science for core*)
OR
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (*satisfies Science for core*) and
- BIOL 13500 - First Year Biology Laboratory ♦ (*satisfies Science for core*)

Requirement #8: Written and Oral Communication (6 credits)

Two of the following course options:

- Written Communication - Credit Hours: 3.00-4.00 ♦ (*satisfies Written Communication for core*)
- Oral Communication - Credit Hours: 3.00 ♦ (*satisfies Oral Communication for core*)
- ENGL 11000 - American Language And Culture For International Students I ♦
- ENGL 11100 - American Language And Culture For International Students II ♦

Grade Average requirement

To complete the First-Year Engineering (FYE) program, 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 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.

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Transitioning to a degree program

After completion of the First-Year Engineering (FYE) program, students may transition to one of fifteen degree programs in engineering (i.e., Mechanical, Electrical, Chemical, Civil, etc.); this happens through the "Transition to Major" (or T2M) process. As a student nears completion of FYE, he or she will inform FYE of their preferred choices of degree program (major). If the degree program is not at capacity, all students completing FYE requirements and requesting that degree program will be admitted. If the program is at capacity, admission will be based on academic record, including GPA, EAI, and grades in specific courses.

Note

- All courses used to fulfill the First-Year Engineering program requirements must have a grade of C- or higher

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School of Aeronautics and Astronautics

Aeronautical and Astronautical Engineering

The 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 (website)

Contact Information

School of Aeronautics and Astronautics

Neil Armstrong Hall of Engineering

701 West Stadium Avenue

West Lafayette, IN 47907-2041

Phone: (765)494-5157

Fax: (765)494-0307

Graduate Information

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

Baccalaureate

Aeronautical and Astronautical Engineering, BSAAE

About the Program

The Aeronautical and Astronautical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

Degree Requirements

130 Credits Required

Departmental/Program Major Courses (56 credits)

AAE Engineering Major Courses (56 credits)

- AAE 20000 - Undergraduate Sophomore Seminar
- AAE 20300 - Aeromechanics I
- AAE 20400 - Aeromechanics II
- AAE 20401 - Aeromechanics II Laboratory
- AAE 25100 - Introduction To Aerospace Design
- 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 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 33401 - Aerodynamics Laboratory or

- AAE 35201 - Structural Analysis I Laboratory
- AAE 33800 - Thermal Sciences or
- AAE 33900 - Aerospace Propulsion
- AAE 42100 - Flight Dynamics And Control or
- AAE 44000 - Spacecraft Attitude Dynamics
- AAE 45000 - Spacecraft Design or
- AAE 45100 - Aircraft Design
- AAE Engr Specialization - Credit Hours: 9.00
- AAE Selectives - Credit Hours: 6.00

Other Departmental /Program Course Requirements (74-79 credits)

[Click here for First-Year Engineering Requirements](#)

- (If pursuing Bachelor of Science in Aeronautical and Astronautical Engineering, CS 15900 - Prog Appl for Engineers is required to graduate, but not required to complete the First Year Engineering program.)
- CGT 16300 - Graphical Communication And Spatial Analysis
- CS 15900 - C Programming or
- CS 17700 - Programming With Multimedia Objects or
- CS 18000 - Problem Solving And Object-Oriented Programming
- MA 26100 - Multivariate Calculus ♦
- MA 26500 - Linear Algebra ♦ (satisfies Quantitative Reasoning for core)
- MA 26600 - Ordinary Differential Equations ♦
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- ME 20000 - Thermodynamics I ♦
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

General Educ,Tech Elective,Specialization & Seletives Requirements

Aeronautical and Astronautical Engineering General Education and Technical Elective Requirements

Aeronautical and Astronautical Engineering Specialization and Selectives

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society

- Written Communication
- Oral Communication
- Quantitative Reasoning

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Aeronautical and Astronautical Engineering Program Requirements

Fall 2nd Year

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

16 Credits

Spring 2nd Year

- CGT 16300 - Graphical Communication And Spatial Analysis (preferred to be taken during Spring First Year)
- AAE 20400 - Aeromechanics II ++
- AAE 20401 - Aeromechanics II Laboratory
- MA 26600 - Ordinary Differential Equations ♦
- ME 20000 - Thermodynamics I ♦
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions
- General Education Elective - Credit Hours: 3.00

18 Credits

Fall 3rd Year

- AAE 33300 - Fluid Mechanics
- AAE 33301 - Fluid Mechanics Laboratory
- AAE 35200 - Structural Analysis I
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- AAE 30100 - Signal Analysis For Aerospace Engineering
- AAE 30000 - Undergraduate Junior Seminar
- General Education Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- AAE 33400 - Aerodynamics
- AAE 34000 - Dynamics And Vibrations
- AAE 36400 - Control System Analysis
- AAE 33401 - Aerodynamics Laboratory or
- AAE 35201 - Structural Analysis I Laboratory
- AAE 33800 - Thermal Sciences or

- AAE 33900 - Aerospace Propulsion
- General Education Elective - Credit Hours: 3.00

16 Credits

Fall 4th Year

- AAE 36401 - Control Systems Laboratory
- AAE 40000 - Undergraduate Senior Seminar
- AAE Engr Specialization/AAE Selectives - Credit Hours: 6.00
- Business Rule/General Education Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 6.00

17 Credits

Spring 4th Year

- AAE 42100 - Flight Dynamics And Control or
- AAE 44000 - Spacecraft Attitude Dynamics
- AAE 45000 - Spacecraft Design or
- AAE 45100 - Aircraft Design
- AAE Engr Specialization/AAE Selectives - Credit Hours: 9.00
- Communications Rule - Credit Hours: 3.00

18 Credits

Notes

- A course indicated with (**) satisfies a Non-departmental Major Course Requirement
- A course indicated with (++) must earn a "C-" or better
- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Aeronautical and Astronautical Engineering General Education and Technical Elective Requirements

General Education Electives (24 Cr)

B.S. students in the Schools of Engineering are required to complete a general education program of at least 24 credit hours, of which, at least 18 credit hours must be taken outside of the Colleges of Engineering, Science, and Technology.

Approved AAE Business Rule coursework:

- AFT 35100 - Air Force Leadership Studies I
- AFT 36100 - Air Force Leadership Studies II
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- IE 34300 - Engineering Economics
- MGMT 20000 - Introductory Accounting

Approved AAE Communications Rule coursework:

- AFT 47100 - National Security Affairs I
- AFT 48100 - National Security Affairs II
- COM 31400 - Advanced Presentational Speaking
- COM 41500 - Discussion Of Technical Problems
- ENGL 30600 - Introduction To Professional Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- ENGL 43300 - Writing Proposals And Grants
- MSL 30200 - Leadership And Ethics
- NS 41300 - Naval Leadership, Management, And Ethics

General Education Electives

- AFT 47100 - National Security Affairs I
- AFT 48100 - National Security Affairs II
- AGECE 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
- AGECE 21700 - Economics
- AGECE 25000 - Economic Geography Of World Food And Resources

- AGECE 34000 - International Economic Development
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 41000 - Agricultural Policy
- AGECE 41500 - Community And Resource Development
- AGECE 45000 - International Agricultural Trade
- AGR 20100 - Communicating Across Culture
- AGRY 12500 - Environmental Science And Conservation
- AGRY 28500 - World Crop Adaptation And Distribution
- CSR 10300 - Introduction To Personal Finance
- CSR 28200 - Customer Relations Management
- CSR 30900 - Leadership Strategies
- CSR 33100 - Consumer Behavior
- CSR 34200 - Personal Finance
- DANC 24000 - Dance Composition
- DANC 25000 - Dance Appreciation
- DANC 34500 - Choreography
- EDCI 28500 - Multiculturalism And Education
- EDST 20000 - History And Philosophy Of Education
- EDST 20010 - Educational Policies And Laws
- EDST 24800 - Contemporary Issues In American Schools
- FNR 48800 - Global Environmental Issues
- FS 47000 - Wine Appreciation
- HORT 30600 - History Of Horticulture
- HTM 37200 - Global Tourism Geography
- LA 16100 - Land And Society
- MSL 30200 - Leadership And Ethics
- NS 41300 - Naval Leadership, Management, And Ethics
- SFS 30200 - Principles Of Sustainability
- TECH 12000 - Design Thinking In Technology
- TECH 33000 - Technology And The Global Society

AAS 10000:59900
 AD 10000:59900
 AMST 10000:59900
 ANTH 10000:59900
 ARAB 10000:59900
 ASAM 10000:59900

ASL 10000:59900
 CHNS 10000:59900
 CLCS 10000:59900
 CMPL 10000:59900
 COM 10000:59900
 ECON 10000:59900
 EDPS 10000:59900
 ENGL 10000:59900
 FR 10000:59900
 FVS 10000:59900
 GER 10000:59900
 GREK 10000:59900
 GSLA 10000:59900

HDFS	10000:59900
HEBR	10000:59900
HIST	10000:59900
IDIS	10000:59900
ITAL	10000:59900
JPNS	10000:59900
JWST	10000:59900
LALS	10000:59900
LATN	10000:59900
LC	10000:59900
LING	10000:59900
MARS	10000:59900
MUS	10000:59900
PHIL	10000:59900
POL	10000:59900
PSY	10000:59900
PTGS	10000:59900
REL	10000:59900
RUSS	10000:59900
SLHS	10000:59900
SOC	10000:59900
SPAN	10000:59900
THTR	10000:59900
WGSS	10000:59900
YDAE	10000:59900

Technical Electives (6 Cr)

- ENGR 31000 - Engineering In Global Context
 - MA 25000 - Problem Solving In Probability
 - MA 27900 - Modern Mathematics In Science And Society
 - ME 31500 - Heat And Mass Transfer
 - ME 36300 - Principles And Practices Of Manufacturing Processes
 - ME 36500 - Measurement And Control Systems I
 - ME 41300 - Noise Control
 - ME 43400 - Gas Turbines For Power And Propulsion
 - ME 44400 - Computer-Aided Design And Prototyping
 - ME 49200 - Technology And Values
 - ME 58100 - Numerical Methods In Mechanical Engineering
 - PHYS 25200 - Electricity And Optics Laboratory
- AFT 30000: 59900
 ANSC 10000: 59900
 ASTR 10000: 59900
 AT 10000: 59900
 BCHM 10000: 59900
 BIOL 10000: 59900
 BME 10000: 59900
 BTNY 10000: 59900
 CE 10000: 59900
 CEM 10000: 59900
 CGT 10000: 59900 *NOT 16300*
 CHE 10000: 59900

CHM 10000: 59900
NOT 11100, 11200, 11500
CS 20000: 59900
EAPS 10000: 59900
ECE 10000: 59900
ECET 10000: 59900
EEE 10000: 59900
ENTM 10000: 59900
ENTR 10000: 59900
EPCS 10000: 59900
FNR 10000: 59900 *NOT 48800*
FS 10000: 59900 *NOT 47000*
HORT 10000: 59900
NOT 30600, 36000
HSCI 10000: 59900
IE 10000: 59900
MA 30000: 59900
MGMT 10000: 59900
MSE 10000: 59900
MSL 30000: 59900
NRES 10000: 59900
NS 30000: 59900
NUCL 10000: 59900
NUTR 10000: 59900
OBHR 10000: 59900
OLS 10000: 59900
PHYS 30000: 59900
STAT 10000: 59900
SYS 10000: 59900
NOT 35000, 40000, 50000, 51000, 53000 if used for specialization or selective
TLI 10000: 59900

Aeronautical and Astronautical Engineering Specialization and Selectives

Specializations and Selectives

- Students will take 9 credits (specialization) from one of the areas below.
- Students will take 6 credits (selective) from any of the areas listed below.

Aerodynamics

- AAE 41200 - Introduction To Computational Fluid Dynamics
- AAE 41600 - Viscous Flows
- AAE 41800 - Zero-Gravity Flight Experiment
- AAE 51100 - Introduction To Fluid Mechanics
- AAE 51200 - Computational Aerodynamics
- AAE 51400 - Intermediate Aerodynamics
- AAE 51500 - Rotorcraft Aerodynamics

- AAE 51800 - Low-Gravity Fluid Dynamics
- AAE 51900 - Hypersonic Aerothermodynamics
- AAE 52000 - Experimental Aerodynamics
- ME 41300 - Noise Control
- ME 43300 - Principles Of Turbomachinery
- ME 50900 - Intermediate Fluid Mechanics
- ME 51000 - Gas Dynamics
- ME 51300 - Engineering Acoustics

Design

- AAE 35103 - Aerospace Systems Design
 - AAE 41800 - Zero-Gravity Flight Experiment
 - AAE 45400 - Design Of Aerospace Structures
 - AAE 50800 - Optimization In Aerospace Engineering
 - AAE 52300 - Introduction To Remote Sensing
 - AAE 53500 - Propulsion Design, Build, Test
 - AAE 55000 - Multidisciplinary Design Optimization
 - AAE 55100 - Design Theory And Methods For Aerospace Systems
 - AAE 56000 - System-Of-Systems Modeling And Analysis
 - AAE 56100 - Introduction To Convex Optimization
 - AAE 58500 - Air Transportation Systems
 - SYS 35000 - Systems Theories And Approaches
 - SYS 40000 - Science And Technology Policy
 - SYS 50000 - Perspectives On Systems
 - SYS 51000 - Tools And Methodologies For Designing Systems
 - SYS 53000 - Practical Systems Thinking
 - CGT 11301 - Product Data Management
 - CGT 20301 - Model-Based Definition
 - CGT 21301 - Simulation And Visualization Applications
 - CGT 22600 - Introduction To Constraint-Based Modeling
 - CGT 30301 - Digital Manufacturing
 - CGT 31301 - The Business Of Managing Digital Product Data
 - CGT 32600 - Graphics Standards For Product Definition
- Note: The CGT Department wants you to sign up for the Product lifecycle Management (PLM) to take these courses.
Up to 6 credits of CGT coursework can be counted toward the Specialization area.
- ME 35200 - Machine Design I
 - ME 44400 - Computer-Aided Design And Prototyping
 - ME 55300 - Product And Process Design
 - ME 55700 - Design For Manufacturability
 - ME 56100 - Optimal Design: Theory With Practice

Dynamics and Control

Note: Only one class from STAT, IE, & ECE options may be used towards the major or minor area

- AAE 50700 - Principles Of Dynamics

- AAE 50800 - Optimization In Aerospace Engineering
- AAE 53200 - Orbit Mechanics
- AAE 54600 - Aerospace Structural Dynamics And Stability
- AAE 55600 - Aeroelasticity
- AAE 56100 - Introduction To Convex Optimization
- AAE 56400 - Systems Analysis And Synthesis
- AAE 56500 - Guidance And Control Of Aerospace Vehicles
- AAE 56700 - Introduction To Applied Stochastic Processes
- AAE 56800 - Applied Optimal Control And Estimation
- AAE 57500 - Introduction To Satellite Navigation And Positioning
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- IE 23000 - Probability And Statistics In Engineering I
- ME 56200 - Advanced Dynamics
- ME 56400 - Vibrations Of Discretized Systems
- ME 56500 - Vehicle Dynamics
- ME 57500 - Theory And Design Of Control Systems
- STAT 51100 - Statistical Methods

Propulsion

At least one of the elected courses must be from AAE.

- AAE 41200 - Introduction To Computational Fluid Dynamics
- AAE 43800 - Air-Breathing Propulsion
- AAE 43900 - Rocket Propulsion
- AAE 53500 - Propulsion Design, Build, Test
- AAE 53700 - Hypersonic Propulsion
- AAE 53800 - Air Breathing Propulsion
- AAE 53900 - Advanced Rocket Propulsion
- ME 30000 - Thermodynamics II
- ME 31500 - Heat And Mass Transfer OR
- ME 43300 - Principles Of Turbomachinery
- ME 51000 - Gas Dynamics
- ME 52500 - Combustion
- ME 53300 - Turbomachinery II
- NUCL 35100 - Nuclear Thermal-Hydraulics II

Structures

- AAE 45300 - Matrix Methods In Aerospace Structures
- AAE 45400 - Design Of Aerospace Structures
- AAE 54600 - Aerospace Structural Dynamics And Stability
- AAE 55000 - Multidisciplinary Design Optimization
- AAE 55200 - Nondestructive Evaluation Of Structures And Materials
- AAE 55300 - Elasticity In Aerospace Engineering
- AAE 55400 - Fatigue Of Structures And Materials
- AAE 55500 - Mechanics Of Composite Materials

- AAE 55600 - Aeroelasticity
- AAE 55800 - Finite Element Methods In Aerospace Structures
- ME 36300 - Principles And Practices Of Manufacturing Processes
- ME 56400 - Vibrations Of Discretized Systems
- ME 56900 - Mechanical Behavior Of Materials
- MSE 23000 - Structure And Properties Of Materials
- AAE 54500 - Dynamic Behavior of Materials
- AAE 54800 - Mechanical Behavior Of Aerospace Materials

Department of Agricultural and Biological Engineering

All information is available at the main department:

Department of Agricultural and Biological Engineering

Weldon School of Biomedical Engineering

Biomedical Engineering

Students in Biomedical Engineering learn to apply tools from engineering and life sciences to design solutions for challenges in human biology, medicine, and healthcare delivery.

Biomedical Engineering students complete coursework in math, physics, chemistry and the life science in combination with engineering principles and design courses to understand the physical and chemical properties of human tissues, computational modeling and analyses, molecular transport, biomechanics, human physiology, and biomedical systems and instrumentation. Essential experiential and practical training includes small group problem-based learning, study abroad programs, internships with a broad range of medically related companies, research in faculty labs, and engineering design projects to solve real medical needs.

The home for the **Weldon School of Biomedical Engineering** is a state-of-the-art building specifically designed to enhance both teaching and research. The \$25-million, 91,000-square-foot facility accommodates the continued growth of biomedical engineering in the 21st century.

Programs of focus and faculty expertise include imaging, instrumentation, engineered biomaterials and biomechanics, and quantitative cellular and systems engineering.

Faculty

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

Contact Information

Weldon School of Biomedical Engineering
Purdue University
206 S. Martin Jischke Drive
West Lafayette, IN 47907-2032
Phone: (765) 494-2995
Email: WeldonBME@purdue.edu
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

The Biomedical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Students in Biomedical Engineering learn to apply tools from engineering and life sciences to design solutions for challenges in human biology, medicine, and healthcare delivery.

Biomedical Engineering students complete coursework in math, physics, chemistry and the life science in combination with engineering principles and design courses to understand the physical and chemical properties of human tissues, computational modeling and analyses, molecular transport, biomechanics, human physiology, and biomedical systems and instrumentation. Essential experiential and practical training includes small group problem-based learning, study abroad programs, internships with a broad range of medically related companies, research in faculty labs, and engineering design projects to solve real medical needs.

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Programs of focus and faculty expertise include imaging, instrumentation, engineered biomaterials and biomechanics, and quantitative cellular and systems engineering.

For more information, please refer to the [Purdue BME website](#).

Degree Requirements

130 Credits Required

Biomedical Engineering Major Requirements (41 credits)

Required Courses (41 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 48901 - Senior Design Project
- BME 49000 - Professional Elements Of Design
- ABE 20200 - Thermodynamics In Biological Systems II
- ECE 30100 - Signals And Systems ♦
- ME 27000 - Basic Mechanics I ♦
- STAT 35000 - Introduction To Statistics or
- STAT 51100 - Statistical Methods

Other Departmental/Program Course Requirements (86 Credits)

[Click here for First-Year Engineering Requirements](#)

- (If pursuing Bachelor of Science in Biomedical Engineering, CHM 11600 - General Chemistry is required to graduate, but not required to complete the First Year Engineering program.)
- BIOL 23000 - Biology Of The Living Cell ♦
- CS 15900 - C Programming ♦
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations or
- MA 26500 - Linear Algebra
and
- MA 26600 - Ordinary Differential Equations
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

- Elective - Credit Hours: 3.00

Supplemental Selectives - Technical (15 Credits)

Biomedical Engineering Supplemental Selectives - Technical

Supplemental Selectives - Life Science (6 Credits)

Biomedical Engineering Supplemental Selectives - Life Science

General Education Requirements (18 credits)

Biomedical Engineering Supplemental Selectives - General Education

- Ethics/Healthcare Policy Selective - Credit Hours: 3.00
- General Education Selective-I - Credit Hours: 3.00
- General Education Selective-II - Credit Hours: 3.00
- General Education Selective-III - Credit Hours: 3.00
- General Education Selective-IV - Credit Hours: 3.00
- General Education Selective-V - Credit Hours: 3.00

Electives (3 Credits)

- Electives - Credit Hours: 3.00

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00

- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Biomedical Engineering Program Requirements

Suggested plan of study:

Fall 2nd Year

- BIOL 23000 - Biology Of The Living Cell ♦
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- BME 20500 - Biomolecular And Cellular Systems Laboratory
- BME 29000 - Frontiers In Biomedical Engineering
- CS 15900 - C Programming ♦
- MA 26100 - Multivariate Calculus
- ME 27000 - Basic Mechanics I ♦

18 Credits

Spring 2nd Year

- ABE 20200 - Thermodynamics In Biological Systems II
- BME 20400 - Biomechanics Of Hard And Soft Tissues
- BME 20600 - Biomechanics And Biomaterials Laboratory
- BME 25600 - Physiological Modeling In Human Health
- MA 26200 - Linear Algebra And Differential Equations or

- MA 26500 - Linear Algebra
and
- MA 26600 - Ordinary Differential Equations
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

17 Credits

Fall 3rd Year

- BME 30100 - Bioelectricity
- BME 30500 - Bioinstrumentation Circuit And Measurement Principles
- BME 30400 - Biomedical Transport Fundamentals
- STAT 35000 - Introduction To Statistics or
- STAT 51100 - Statistical Methods (preferred for BME)

- 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 ♦
- Technical Engineering Selective - Credit Hours: 3.00
- Technical Engineering Selective (Quantitative Breadth/Data Science) - Credit Hours: 3.00
- General Elective or Ethics & Policy Selective - Credit Hours: 3.00

16 Credits

Fall 4th Year

- BME 48901 - Senior Design Project
- BME 49000 - Professional Elements Of Design
- Technical Engineering Selective - Credit Hours: 3.00
- Life Science Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- Technical Engineering Selective (Quantitative Breadth/Data Science) - Credit Hours: 3.00
- Technical Engineering Selective - Credit Hours: 3.00

- Life Science Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00
- Unrestricted Elective - Credit Hours: 3.00

18 Credits

Notes

- All required First Year Engineering (FYE) courses must be completed with a C- or above for entry into BME.
- A minimum Graduation Index and BME Major GPA of at least 2.0 is required to qualify for graduation with a BSBME.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Biomedical Engineering Supplemental Selectives - General Education

General Education (18 Credits)

- BME Undergraduate students must complete 18 credits of general education.
- Many courses count for both General Education and University Core Curriculum (UCC) Foundational Learning Outcomes (FLO) but many do not. When choosing courses to fulfill these requirements, students will need to check both the UCC FLO course list and the BME Approved General Education Course List found below.
- General education courses are non-technical courses that provide a broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.
 - At least 3 credits must be from the Ethics and Policy Healthcare list which is included as a general education course. See list below.
 - At least 6 credits must be taken inside the College of Liberal Arts, the Krannert School of Management and/or the Honors College.

- At least 6 credits of the general education courses must be at the non-introductory level, meaning they are at the 30000-level or higher, or have a required prerequisite in the same department.
- The remaining courses may be taken from any of the following lists. If a student is unsure about a course counting for their general education requirement, see academic advisor BEFORE taking the course.

Ethics and Policy Healthcare Requirement (3 Credits)

BME students must complete at least 3 credits (earning a C- or better) addressing ethical and policy issues in healthcare and medicine. It is important that our students have an awareness of societal, regulatory, policy, and ethical considerations that influence healthcare and medicine. Thus, we require our students to take at least one course that advances their knowledge in this area.

- PHIL 20700 - Ethics For Technology, Engineering, And Design
- PHIL 27000 - Biomedical Ethics
- PHIL 28000 - Ethics And Animals
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare
- MSE 59700 - Selected Topics In Materials Engineering Ethics In Engr Practice Credit Hours: 3.00
- PSY 58100 - Neuroethics

Liberal Arts/Management/Honors (6 Credits)

At least 6 credits must be taken inside the College of Liberal Arts, the Krannert School of Management and/or the Honors College.

African American Studies

Introductory:

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AAS 35900 - Black Women Writers

Non-Introductory:

- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AAS 49100 - Special Topics In African American Studies

Art and Design

Introductory:

- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography

- AD 11900 - Introduction To Digital Color Imaging
- AD 12500 - Introduction To Interior Design
- AD 13000 - Interior Design Communication
- AD 22000 - Computers In Art
- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- AD 24200 - Ceramics I
- AD 25100 - History Of Photography I
- AD 25500 - Art Appreciation
- AD 26200 - Jewelry And Metalwork I
- AD 26500 - Relief Printmaking
- AD 26600 - Silkscreen Printmaking
- AD 26700 - Digital Media I: Photography And Digital Imaging
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture

Non-Introductory:

- AD 10600 - Design II
- AD 11400 - Drawing II
- AD 20000 - Beginning Painting
- AD 20500 - Design III
- AD 20600 - Studio In Visual Communication Design
- AD 21300 - Life Drawing I
- AD 21500 - Materials and Processes
- AD 23000 - Interior Design I
- AD 23500 - Materials and Processes II
- AD 24000 - Interior Drafting And Drawing
- AD 25000 - Interior Design II
- AD 25600 - Presentation Techniques
- AD 30000 - Life Drawing II
- AD 30400 - Video Art
- AD 30600 - Industrial Design II
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31600 - Seminar On Ideas In Industrial Design I: Design And Society
- AD 32600 - Physical Computing
- AD 33000 - Interior Design III
- AD 33100 - Digital Video Production And Aesthetics
- AD 33300 - Photo Silk Screen
- AD 34000 - Furniture Development
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36200 - Jewelry And Metalwork
- AD 36500 - Intermediate Painting
- AD 36800 - Etching And Intaglio Printmaking
- AD 36900 - Lithographic Printmaking

- AD 37000 - Woven Textiles
- AD 38000 - Baroque Art
- AD 38100 - Fine Art Photographic Printmaking And Artist's Book
- AD 38200 - A Global History Of Art, Eighteenth-Nineteenth Centuries
- AD 38400 - Contemporary Art
- AD 38500 - History Of Interior Design
- AD 39100 - History Of Chinese Art
- AD 39500 - History Of Design
- AD 39600 - Art Museum Practices
- AD 39700 - Sustainability In The Built Environment
- AD 40000 - Advanced Painting
- AD 40500 - Industrial Design III
- AD 41500 - Professional Techniques
- AD 42100 - Advanced Studies In Photography And Related Media I
- AD 42200 - Advanced Studies In Photography And Related Media II
- AD 43000 - Interior Design V
- AD 43100 - Visual Communication Design III
- AD 43200 - Visual Communication Design IV
- AD 44200 - Ceramics III
- AD 45400 - Modern Architecture
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 49000 - Special Problems In Art And Design

American Studies

Introductory:

- AMST 10100 - America And The World
- AMST 20100 - Interpreting America

Non-Introductory:

- AMST 30100 - Perspectives On America

Anthropology

Introductory:

- ANTH 10000 - Introduction To Anthropology
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Introduction To Biological Anthropology And Human Evolution
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 21200 - Culture, Food And Health
- ANTH 23000 - Gender Across Cultures
- ANTH 23500 - The Great Apes
- ANTH 28200 - Introduction To LGBT Studies

Non-Introductory:

- ANTH 30700 - The Development Of Contemporary Anthropological Theory

- ANTH 31000 - Mortuary Practices Across Cultures
- ANTH 31100 - The Archaeology Of The Ancient Andes
- ANTH 31200 - The Archaeology Of Ancient Egypt And The Near East
- ANTH 31300 - Archaeology Of North America
- ANTH 32000 - Ancient States And Empires
- ANTH 33500 - Primate Behavior
- ANTH 33600 - Human Variation
- ANTH 33700 - Human Diet: Origins And Evolution
- ANTH 34000 - Global Perspectives On Health
- ANTH 34100 - Culture And Personality
- ANTH 36800 - Sociolinguistic Study Of African American English
- ANTH 37000 - Ethnicity And Culture
- ANTH 37300 - Anthropology Of Religion
- ANTH 37700 - Anthropology Of Hunter-Gatherer Societies
- ANTH 37800 - Archaeology And Cultural Anthropology Of Mesoamerica (Mexico, Belize And Guatemala)
- ANTH 37900 - Native American Cultures
- ANTH 38000 - Using Anthropology In The World
- ANTH 38500 - Community Engagement In Anthropology
- ANTH 39000 - Individual Research In Anthropology
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 40400 - Comparative Social Organization
- ANTH 41400 - Introduction To Language And Culture
- ANTH 42500 - Archaeological Method And Theory
- ANTH 43600 - Human Evolution
- ANTH 46000 - Contemporary Issues In Agriculture
- ANTH 48200 - Sexual Diversity In Global Perspectives
- ANTH 50700 - Theory In Sociocultural Anthropology

Arabic

Introductory:

- ARAB 10100 - Standard Arabic Level I
- ARAB 23000 - Arabic Literature In Translation
- ARAB 28100 - Introduction To Islamic Civilization And Culture

Non-Introductory:

- ARAB 10200 - Standard Arabic Level II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 28000 - Arabic Culture
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI

Asian American Studies

Introductory:

- ASAM 24000 - Introduction To Asian American Studies

Non-Introductory:

- ASAM 34000 - Contemporary Issues In Asian American Studies

American Sign Language

Introductory:

- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society

Non-Introductory:

- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV

Chinese

Introductory:

- CHNS 10100 - Chinese Level I
- CHNS 10700 - Chinese For Heritage Students
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 28500 - Chinese Calligraphy

Non-Introductory:

- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 23000 - Chinese Literature In Translation
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- CHNS 30500 - Introduction To Classical Chinese
- CHNS 31300 - Reading And Writing Practice
- CHNS 33000 - Introduction To Chinese Cinema
- CHNS 34100 - Chinese Literature I: Traditional Chinese Literature
- CHNS 34200 - Chinese Literature II: Modern Chinese Literature
- CHNS 40100 - Chinese Level VII
- CHNS 40200 - Chinese Level VIII
- CHNS 49000 - Special Topics In Chinese Language

Classics

• Introductory:

- CLCS 18100 - Classical World Civilizations
- CLCS 23100 - Survey Of Latin Literature
- CLCS 23200 - Classical Roots Of English Words
- CLCS 23300 - Comparative Mythology
- CLCS 23400 - Medical And Scientific Terminology From Greek And Latin Roots

- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CLCS 23800 - The Tragic Vision
- CLCS 23900 - The Comic Vision
- CLCS 28000 - Topics In Classical Civilization

Non-Introductory:

- CLCS 33700 - The Ancient Epic
- CLCS 33900 - Literature And The Law
- CLCS 38000 - Alexander The Great and Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38500 - Science, Medicine And Magic In The Ancient West
- CLCS 38600 - Ancient Greek Religion
- CLCS 38700 - Roman Religion
- CLCS 48000 - Potters And Society In Antiquity
- CLCS 48300 - Republican Rome

Comparative Literature

Introductory:

- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D
- CMPL 26700 - World Literature: From 1700 A D To The Present

Communication

Introductory:

- COM 11400 - Fundamentals Of Speech Communication
- COM 20400 - Critical Perspectives On Communication
- COM 21200 - Approaches To The Study Of Interpersonal Communication
- COM 21700 - Science Writing And Presentation
- COM 22400 - Communicating In The Global Workplace
- COM 25000 - Mass Communication And Society
- COM 25100 - Communication, Information, And Society
- COM 25200 - Writing For Mass Media
- COM 25300 - Introduction To Public Relations
- COM 25600 - Introduction To Advertising

Non-Introductory:

- COM 21000 - Debating Public Issues
- COM 25700 - Public Relations Techniques
- COM 30300 - Intercultural Communication
- COM 31100 - Copy Editing
- COM 31200 - Rhetoric In The Western World
- COM 31400 - Advanced Presentational Speaking
- COM 31500 - Speech Communication Of Technical Information
- COM 31800 - Principles Of Persuasion

- COM 32000 - Small Group Communication
- COM 32400 - Introduction To Organizational Communication
- COM 32500 - Interviewing: Principles And Practice
- COM 32800 - Diversity At Work: A Rhetorical Approach
- COM 32900 - History Of The Mass Media
- COM 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 33600 - Advertising In The Electronic Mass Media
- COM 35100 - Mass Communication Ethics
- COM 35300 - Problems In Public Relations
- COM 35600 - Problems In Advertising
- COM 36800 - Sociolinguistic Study Of African American English
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37600 - Communication And Gender
- COM 38100 - Gender And Feminist Studies In Communication
- COM 40800 - News Magazine Production
- COM 40900 - Video Journalism
- COM 41100 - Communication And Social Networks
- COM 41200 - Theories Of Human Interaction
- COM 41500 - Discussion Of Technical Problems
- COM 41600 - United States Politics And The Media
- COM 43500 - Communication And Emerging Technologies
- COM 45300 - Reporting Of Science News
- COM 45600 - Advertising Writing
- COM 46400 - American Political Communication
- COM 49100 - Special Topics In Communication

Dance

Introductory:

- DANC 10100 - Modern Dance Technique
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 14000 - Dance Improvisation
- DANC 14400 - Contact Improvisation

Non-Introductory:

- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 23000 - Biomechanics Of Dance, Movement and Strength
- DANC 24000 - Dance Composition
- DANC 25000 - Dance Appreciation
- DANC 30100 - Modern Dance Techniques III

Economics

Introductory:

- ECON 21000 - Principles Of Economics
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics

Non-Introductory:

- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 35500 - Comparative Analysis Of Economic Systems
- ECON 36100 - Antitrust And Regulation
- ECON 36500 - History Of Economic Thought
- ECON 36800 - Economics And Values
- ECON 38000 - Money And Banking
- ECON 39000 - Junior Level Problems In Economics

English

Introductory:

- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- ENGL 22700 - Elements Of Linguistics
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Ecological Literature
- ENGL 23500 - Introduction To Drama
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- ENGL 25800 - Nobel Prize Winners In Literature
- ENGL 26200 - Greek And Roman Classics In Translation
- ENGL 26400 - The Bible As Literature
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D.
- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 27600 - Shakespeare On Film
- ENGL 27900 - The American Short Story In Print And Film
- ENGL 28600 - The Movies

Non-Introductory:

- ENGL 20500 - Introduction To Creative Writing
- ENGL 30100 - Ways Of Reading
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Computer-Aided Publishing
- ENGL 31600 - Craft Of Fiction From A Writer's Perspective

- ENGL 31700 - Craft Of Poetry From a Writer's Perspective
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 33100 - Medieval English Literature
- ENGL 33300 - Renaissance English Literature
- ENGL 33500 - Restoration And Eighteenth-Century English Literature
- ENGL 33700 - Nineteenth-Century English Literature
- ENGL 33900 - Twentieth-Century British Literature
- ENGL 34100 - Topics In Science, Literature, And Culture
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35200 - Native American Literature
- ENGL 35800 - Black Drama
- ENGL 35900 - Black Women Writers
- ENGL 36000 - Gender And Literature
- ENGL 36500 - Literature And Imperialism
- ENGL 36600 - Postcolonial Literatures
- ENGL 36800 - Sociolinguistic Study Of African American English
- ENGL 37100 - Twentieth-Century American Literature
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37900 - The Short Story
- ENGL 38100 - The British Novel
- ENGL 38200 - The American Novel
- ENGL 38600 - History Of Film To 1950
- ENGL 38700 - History Of Film Since 1950
- ENGL 38900 - Literature For Children
- ENGL 39100 - Composition For English Teachers
- ENGL 39600 - Studies In Literature And Language
- ENGL 40600 - Review Writing
- ENGL 40700 - Intermediate Poetry Writing
- ENGL 40900 - Intermediate Fiction Writing
- ENGL 41100 - Studies In Major Authors
- ENGL 41200 - Studies In Genre
- ENGL 41300 - Studies In Literature And History
- ENGL 41400 - Studies In Literature And Culture
- ENGL 41900 - Multimedia Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- ENGL 42400 - Writing For High Technology Industries
- ENGL 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- ENGL 44400 - Milton
- ENGL 46000 - Studies In Women's Literature
- ENGL 46200 - The Bible As Literature: The Old Testament
- ENGL 46300 - The Bible As Literature: The New Testament
- ENGL 46600 - Cultural Encounters
- ENGL 47000 - Theories Of Rhetoric And Composition

French

Introductory:

- FR 10100 - French Level I
- FR 23000 - French Literature In Translation

Non-Introductory:

- FR 10200 - French Level II
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 22400 - Business French I
- FR 24100 - Introduction To The Study Of French Literature
- FR 28000 - Second-Year French: Special Topics
- FR 30100 - French Level V
- FR 30200 - French Level VI
- FR 32400 - Business French II
- FR 33000 - French Cinema
- FR 34100 - French Literature I: From The Middle Ages To The Enlightenment
- FR 34200 - French Literature II: The 19th And 20th Centuries
- FR 38000 - Special Topics In French Culture And Civilization
- FR 39400 - Special Topics In French Literature
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 42400 - Business French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization

German

Introductory:

- GER 10100 - German Level I
- GER 23000 - German Literature In Translation

Non-Introductory:

- GER 10200 - German Level II
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 22400 - German Level IV: Business German
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics
- GER 30100 - German Level V
- GER 30200 - German Level VI
- GER 32300 - German Level VI: Science And Engineering
- GER 33000 - German Cinema
- GER 34100 - German Literature I: From The Middle Ages To The 18th Century
- GER 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 40100 - German Level VII
- GER 40200 - German Level VIII

- GER 42400 - Business German
- GER 48000 - German Civilization
- GER 55100 - Lyric Poetry From Romanticism To The Present

Greek

Introductory:

- GREK 10100 - Ancient Greek Level I

Non-Introductory:

- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 44600 - Greek Historians
- GREK 49000 - Directed Reading In Classical Greek

Hebrew

Introductory:

- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture

Non-Introductory:

- HEBR 10200 - Modern Hebrew II
- HEBR 12200 - Biblical Hebrew Level II
- HEBR 20100 - Modern Hebrew Level III
- HEBR 20200 - Modern Hebrew Level IV
- HEBR 22100 - Biblical Hebrew Level III
- HEBR 22200 - Biblical Hebrew Level IV
- HEBR 38000 - Israel And The Modern World: Cinema, Literature, History And Politics

History

Introductory:

- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 10500 - Survey Of Global History
- HIST 15100 - American History To 1877
- HIST 15200 - United States Since 1877
- HIST 19500 - The Historian's Craft: Historical Research And Film
- HIST 20100 - Special Topics In History
- HIST 21000 - The Making Of Modern Africa
- HIST 21100 - The Global Field: World Soccer And Global History
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688

- HIST 23800 - History Of Russia From Medieval Times To 1861
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24100 - East Asia In The Modern World
- 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 25000 - United States Relations With The Middle East And North Africa
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)

Non-Introductory:

- HIST 30200 - Historical Topics
- HIST 30400 - America In The 1960s
- 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 32300 - German History
- HIST 32400 - Modern France
- HIST 32600 - Popular Culture In Preindustrial Europe (1400-1800)
- 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 33100 - Great Figures In History
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34100 - History Of Africa South Of The Sahara
- HIST 34200 - Africa And The West
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35600 - America In Vietnam
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 35900 - Gender In East Asian History
- HIST 36000 - Gender In Middle East History
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37100 - Society, Culture, And Rock And Roll
- HIST 37200 - History Of The American West
- HIST 37500 - Women In America Since 1870
- HIST 37600 - History Of Indiana
- HIST 37700 - History And Culture Of Native America

- HIST 37900 - Gandhi: Myth Reality And Perspective
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History
- HIST 38400 - History Of Aviation
- HIST 38700 - History Of The Space Age
- HIST 39100 - History Of Russian Popular Entertainment
- HIST 39200 - Caribbean History And Culture
- HIST 39400 - Environmental History Of The United States
- HIST 39500 - Junior Research Seminar
- HIST 39600 - The Afro-American To 1865
- HIST 39800 - The Afro-American Since 1865
- HIST 40300 - Europe In The Reformation
- HIST 40400 - Kings And Philosophers: Europe 1618-1789
- HIST 40500 - The French Revolution And Napoleon
- HIST 40600 - Rebels And Romantics: Europe 1815-1870
- HIST 40700 - Road To World War I: Europe 1870-1919
- 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
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 42700 - History Of Spain And Portugal
- HIST 43900 - Communist China
- HIST 44100 - Africa In The Twentieth Century
- HIST 45500 - Modern Iraq
- HIST 46000 - American Colonial History
- HIST 46100 - The Revolutionary Era, 1763 To 1800
- HIST 46700 - The Emergence Of Modern America
- HIST 46800 - Recent American History
- HIST 46900 - Black Civil Rights Movement
- HIST 47100 - History Of The Great Plains Indians
- HIST 47200 - History Of Mexico
- HIST 47300 - History Of The South
- HIST 47500 - Spanish Frontier In North America
- HIST 47600 - The Civil War In Myth And Memory
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49200 - Seminar In Historical Topics
- HIST 49500 - Research Seminar In Historical Topics
- HIST 50500 - Haunted Pasts: Ghosts, Ghouls And Monsters In Global Culture
- HIST 51500 - A History Of Western Thought II

Honors

Introductory:

- HONR 19900 - Interdisciplinary Honors - Introductory Seminar
- HONR 29900 - Interdisciplinary Honors - Experiential Learning

Non-Introductory:

- HONR 39900 - Interdisciplinary Honors - Special Topics Seminar

Italian

Introductory:

- ITAL 10100 - Italian Level I
- ITAL 10500 - Accelerated Basic Italian

Non-Introductory:

- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21100 - Italian Conversation III
- ITAL 30100 - Italian Level V
- ITAL 30200 - Italian Level VI
- ITAL 31200 - Advanced Italian Conversation
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- ITAL 33500 - Italian-American Cinema
- ITAL 34100 - Italian Literature I: From The Middle Ages To The Enlightenment
- ITAL 34200 - Italian Literature II: From Romanticism To The Present
- ITAL 39300 - Special Topics In Italian Literature Or Cinema
- ITAL 39400 - Special Topics In Italian Literature
- ITAL 49300 - Advanced Topics In Italian Literature Or Cinema

Japanese

Introductory:

- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 28000 - Introduction To Modern Japanese Civilization

Non-Introductory:

- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 30100 - Japanese Level V
- JPNS 30200 - Japanese Level VI
- JPNS 31300 - Intermediate Reading In Japanese I
- JPNS 33000 - Japanese Cinema
- JPNS 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 36100 - Elementary Survey Of Japanese Linguistics
- JPNS 36200 - The Structure Of Japanese II: Advanced Sentence Structure And Applied Linguistics
- JPNS 36300 - Relationship Of Japanese Language And Society
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48000 - Japanese Civilization
- JPNS 49000 - Special Topics In Japanese Language

Jewish Studies

Non-Introductory:

- JWST 33000 - Introduction To Jewish Studies

Latino and Latin-American Studies

Introductory:

- LALS 25000 - Introduction To Latin American And Latino Studies

Latin

Introductory:

- LATN 10100 - Latin Level I

Non-Introductory:

- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 31500 - Latin Paleography I
- LATN 34300 - Roman Oratory
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy
- LATN 34600 - Roman Rhetoric
- LATN 34700 - Roman Comedy
- LATN 44200 - Roman Lyric Poetry
- LATN 44300 - Roman Satire
- LATN 44400 - Roman Philosophers
- LATN 44500 - Roman Encyclopedists
- LATN 44600 - Roman Historians
- LATN 49000 - Directed Reading In Latin

School of Language and Cultures

Introductory:

- LC 23100 - Fairytale, Folktale, Fable
- LC 23300 - Love, Sex, And Gender In Western European Literature
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation

Non-Introductory:

- LC 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 36100 - Sound And Form In Language
- LC 37100 - Phonetics Of Foreign Languages
- LC 57000 - Introduction To Semiotics
- LC 59300 - Special Topics In Literature
- LC 59600 - Special Topics In Linguistics

Linguistics

Introductory:

- LING 20100 - Introduction To Linguistics

Non-Introductory:

- LING 31100 - Fundamentals Of Phonology And Morphology
- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- LING 39800 - Special Topics In Linguistics I

Medieval and Renaissance Studies

Introductory:

- MARS 22000 - Introduction To Medieval And Renaissance Studies

Non-Introductory:

- MARS 42000 - Medieval And Renaissance Studies Seminar

Management

Introductory:

- MGMT 20000 - Introductory Accounting
- MGMT 24200 - Contemporary Problems In Personal Finance For Minorities

Non-Introductory:

- MGMT 20100 - Management Accounting I
- MGMT 30400 - Introduction To Financial Management
- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science
- MGMT 31000 - Financial Management
- MGMT 32300 - Principles Of Marketing
- MGMT 32400 - Marketing Management
- MGMT 35000 - Intermediate Accounting I
- MGMT 35100 - Intermediate Accounting II
- MGMT 36100 - Operations Management
- MGMT 38200 - Management Information Systems
- MGMT 40500 - Six Sigma And Quality Analytics
- MGMT 41100 - Investment Management
- MGMT 41200 - Financial Institutions And Markets
- MGMT 41300 - Corporate Finance
- MGMT 42500 - Marketing Research
- MGMT 45600 - Legal Foundations For Business II
- MGMT 46200 - Advanced Manufacturing Planning And Control Systems
- MGMT 47200 - Advanced Spreadsheet Modeling And Simulation
- MGMT 48400 - Management Of Entrepreneurial Ventures

Music

Introductory:

- MUS 25000 - Music Appreciation
- MUS 26100 - Fundamentals Of Music

Non-Introductory:

- MUS 36100 - Music Theory I
- MUS 36200 - Music Theory II
- MUS 36300 - Music Theory III
- MUS 37400 - Contemporary Music
- MUS 37500 - Selected Topics In Music
- MUS 37600 - World Music
- MUS 38100 - Music History I: Antiquity To Mozart
- MUS 38200 - Music History II: Beethoven To The Present
- MUS 49000 - Guided Reading In Music

Philosophy

Introductory:

- PHIL 11000 - The Big Questions: Introduction to Philosophy
- PHIL 11100 - Introduction To Ethics
- PHIL 11400 - Global Moral Issues
- PHIL 12000 - Critical Thinking
- PHIL 15000 - Principles Of Logic
- PHIL 20600 - Introduction To Philosophy Of Religion
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- PHIL 21900 - Philosophy And The Meaning Of Life
- PHIL 22100 - Introduction To Philosophy Of Science
- PHIL 22300 - Fate And Free Will
- PHIL 22500 - Philosophy And Gender
- PHIL 23000 - Religions Of The East
- PHIL 23100 - Religions Of The West
- PHIL 24000 - Social And Political Philosophy
- PHIL 24200 - Philosophy, Culture, And The African American Experience
- PHIL 26000 - Philosophy And Law
- PHIL 27000 - Biomedical Ethics
- PHIL 27500 - The Philosophy Of Art
- PHIL 28000 - Ethics And Animals
- PHIL 29000 - Environmental Ethics
- PHIL 29300 - Selected Topics In Philosophy

Non-Introductory:

- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PHIL 30400 - Nineteenth-Century Philosophy
- PHIL 30600 - Twentieth-Century Philosophy
- PHIL 31900 - Classic And Contemporary Marxism
- PHIL 35000 - Philosophy And Probability

- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40600 - Intermediate Philosophy Of Religion
- PHIL 41100 - Modern Ethical Theories
- PHIL 42100 - Philosophy Of Science
- PHIL 42400 - Recent Ethical Theory
- PHIL 42500 - Metaphysics
- PHIL 43000 - Modern Religious Thought
- PHIL 43100 - Contemporary Religious Thought
- PHIL 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- PHIL 49000 - Advanced Topics In Philosophy
- PHIL 50100 - Studies In Greek Philosophy
- PHIL 50200 - Studies In Medieval Philosophy
- PHIL 50300 - Studies In Early Modern Philosophy
- PHIL 50500 - Islamic And Jewish Philosophy And The Classical Tradition
- PHIL 50600 - Advanced Philosophy Of Religion

Political Science

Introductory:

- POL 10100 - American Government And Politics
- POL 12000 - Introduction To Public Policy And Public Administration
- POL 13000 - Introduction To International Relations
- POL 14100 - Governments Of The World
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy
- POL 22900 - Emerging Problems In Political Science
- POL 23000 - Introduction To The Study Of Peace
- POL 23100 - Introduction To United States Foreign Policy
- POL 23200 - Contemporary Crises In International Relations
- POL 23500 - International Relations Among Rich And Poor Nations
- POL 23700 - Modern Weapons And International Relations

Non-Introductory:

- POL 30000 - Introduction To Political Analysis
- POL 32300 - Comparative Environmental Policy
- POL 32600 - Black Political Participation In America
- POL 32700 - Global Green Politics
- POL 34500 - West European Democracies In The Post-Industrial Era
- POL 34700 - Introduction To Latin American Politics
- POL 34800 - East Asian Politics
- POL 35000 - Foundations Of Western Political Theory: From The Renaissance To Marx
- POL 35100 - Foundations Of Western Political Theory: From Plato To The Reformation
- POL 35200 - Selected Topics In Political Theory
- POL 35300 - Current Political Ideologies
- POL 36000 - Women And The Law

- POL 37000 - Introduction To Comparative State Politics
- POL 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- POL 41000 - Political Parties And Politics
- POL 41100 - Congress: Structure And Functioning
- POL 41300 - The Human Basis Of Politics
- POL 41500 - US Politics And The Media
- POL 42300 - International Environmental Policy
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43100 - Selected Problems In International Law
- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43400 - United States Foreign Policy, Central America And The Caribbean
- POL 43500 - International Law
- POL 43900 - United States Foreign Policy Making
- POL 45300 - Marxism And Its Critics
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- POL 49300 - Interdisciplinary Undergraduate Seminar

Portuguese

Introductory:

- PTGS 10100 - Portuguese Level I

Non-Introductory:

- PTGS 10200 - Portuguese Level II
- PTGS 10500 - Accelerated Portuguese
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- PTGS 55100 - Brazilian Poetry
- PTGS 55700 - Brazilian Fiction
- PTGS 59400 - Special Topics In Luso-Brazilian Literature

Religious Studies

Introductory:

- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20300 - Theology Of Paul
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West

Non-Introductory:

- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35000 - History Of Christian Theology
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics

Russian

Introductory:

- RUSS 10100 - Russian Level I

Non-Introductory:

- RUSS 10200 - Russian Level II
- RUSS 11200 - Conversation Supplement To Russian Level II
- RUSS 20100 - Russian Level III
- RUSS 20200 - Russian Level IV
- RUSS 21100 - Conversation Supplement To Russian Level III
- RUSS 21200 - Conversation Supplement To Russian Level IV
- RUSS 30100 - Russian Level V
- RUSS 30200 - Russian Level VI
- RUSS 33000 - Russian And East European Cinema
- RUSS 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 36100 - The Structure Of Russian I: Sound System And Sentence Structure
- RUSS 36200 - The Structure Of Russian II: Wordforms And Word Formation
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 48000 - Russian Civilization
- RUSS 58100 - Russian Culture

Sociology

Introductory:

- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems

Non-Introductory:

- SOC 31000 - Racial And Ethnic Diversity
- SOC 31200 - American Society
- SOC 31600 - Industry And Society
- SOC 32400 - Criminology
- SOC 32600 - Social Conflict And Criminal Justice
- SOC 32700 - Crime, Deviance And Mass Media
- SOC 32800 - Criminal Justice
- SOC 33400 - Urban Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Introduction To The Sociology Of Developing Nations

- SOC 34000 - General Social Psychology
- SOC 34100 - Culture And Personality
- SOC 35000 - Social Psychology Of Marriage
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 37400 - Medical Sociology
- SOC 39100 - Selected Topics In Sociology
- SOC 40200 - Sociological Theory
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42100 - Juvenile Delinquency
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 45000 - Gender Roles In Modern Society
- SOC 45400 - Family Violence
- SOC 49300 - Interdisciplinary Undergraduate Seminar
- SOC 57100 - Health And Behavior
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare
- SOC 52500 - Social Movements

Spanish

Introductory:

- SPAN 10100 - Spanish Level I
- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation

Non-Introductory:

- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 21100 - Elementary Spanish Conversation II
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 24100 - Introduction To The Study Of Hispanic Literature
- SPAN 28000 - Second-Year Spanish: Special Topics
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 30500 - Spanish For Heritage Speakers
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 34100 - Hispanic Literature I: Poetry And Drama
- SPAN 34200 - Hispanic Literature II: Prose

- SPAN 36100 - The Structure Of Spanish I: Phonetics And Phonology
- SPAN 40100 - Spanish Level VII
- SPAN 40200 - Spanish Level VIII
- SPAN 41500 - Spanish Translation And Interpreting
- SPAN 42400 - Business Spanish
- SPAN 48000 - Spanish Civilization
- SPAN 48100 - Spanish Culture
- SPAN 48200 - Latin American Civilization
- SPAN 48300 - Latin American Culture
- SPAN 54100 - Spanish Literature Of The Golden Age
- SPAN 55000 - Spanish American Literature Of The Colonial Period

Theater

Introductory:

- THTR 13300 - Survey Of Acting
- THTR 16000 - Introduction To Scene Design And Technology
- THTR 16100 - Introduction To Costume Design And Technology
- THTR 16200 - Introduction To Light Design And Technology
- THTR 16300 - Introduction To Sound Design And Technology
- THTR 16400 - Introduction To Theatre Organization And Management
- THTR 20100 - Theatre Appreciation
- THTR 25600 - Stage Make-Up
- THTR 26300 - Introduction To Sound Studios
- THTR 29000 - Special Topics In Theatre

Non-Introductory:

- THTR 21300 - Voice For The Actor
- THTR 23300 - Acting I: Acting Technique
- THTR 23500 - Vocal/Physical Preparation
- THTR 32300 - Acting: Movement For The Actor
- THTR 33300 - Acting II: Scene Study
- THTR 33400 - Acting III: Acting For The Camera
- THTR 33600 - Rehearsal And Performance II
- THTR 35300 - Theater Audio Techniques I
- THTR 36100 - Costume Design
- THTR 36800 - Theatre Production II
- THTR 38000 - History Of Theatre I
- THTR 38100 - History Of Theatre II
- THTR 39000 - Directed Study Of Special Theatre Problems
- THTR 43300 - Acting IV: Acting Shakespeare
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- THTR 45800 - Problems In Theatre Technology
- THTR 46800 - Problems In Theatre Design
- THTR 49000 - Special Topics In Theatre

Women's, Gender, and Sexuality Studies

Introductory:

- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Selected Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBT Studies

Non-Introductory:

- WGSS 38000 - Gender And Multiculturalism
- WGSS 38300 - Women And Work
- WGSS 39000 - Selected Topics In Women's, Gender And Sexuality Studies
- WGSS 48000 - Feminist Theory
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies
- WGSS 48300 - Feminisms In Global Perspective

Other General Education Selectives

Agricultural Economics

Introductory:

- AGEC 20400 - Introduction To Resource Economics And Environmental Policy
- AGEC 21700 - Economics
- AGEC 25000 - Economic Geography Of World Food And Resources
- AGEC 29600 - Selected Topics In Agricultural Economics

Non-Introductory:

- AGEC 22000 - Economics Of Agricultural Markets
- AGEC 31000 - Farm Organization
- AGEC 32100 - Principles Of Commodity Marketing
- AGEC 32700 - Principles Of Food And Agribusiness Marketing
- AGEC 33000 - Management Methods For Agricultural Business
- AGEC 33100 - Principles Of Selling In Agricultural Business
- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 41500 - Community And Resource Development
- AGEC 42400 - Financial Management Of Agricultural Business
- AGEC 42500 - Estate Planning And Property Transfer
- AGEC 42700 - Advanced Agribusiness Marketing
- AGEC 43000 - Agricultural And Food Business Strategy
- AGEC 43100 - Advanced Agri-Sales And Marketing
- AGEC 45000 - International Agricultural Trade
- AGEC 45500 - Agricultural Law
- AGEC 45600 - Federal Income Tax Law
- AGEC 49800 - Special Problems

Consumer Science and Retailing

Introductory:

- CSR 10300 - Introduction To Personal Finance

- CSR 20900 - Introduction To Retail Management

Non-Introductory:

- CSR 31500 - Relationship Selling
- CSR 32300 - Visual Merchandising
- CSR 32800 - Apparel Art And Design
- CSR 33100 - Consumer Behavior
- CSR 33200 - Cross-Cultural Marketing And International Retailing
- CSR 34200 - Personal Finance
- CSR 35500 - Apparel Showcase
- CSR 38600 - Risk Management
- CSR 41500 - Sales Force Management
- CSR 42100 - Apparel Design III
- CSR 48400 - Consumer Investment And Savings Decisions

Education - Curriculum and Instruction

Introductory:

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 28500 - Multiculturalism And Education

Non-Introductory:

- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 31100 - Media For Children
- EDCI 32500 - Literacy In The Primary Classroom
- EDCI 32600 - Literacy In The Intermediate Classroom
- EDCI 35600 - Career Education In Family And Consumer Sciences
- EDCI 42100 - The Teaching Of Biology In Secondary Schools
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 42500 - Teaching Of Mathematics In Secondary Schools
- EDCI 42600 - Teaching Mathematics In The Middle And Junior High School
- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 43200 - The Teaching Of Health And Safety In Secondary Schools

Educational and Psychological Studies

- Introductory:

- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom

Non-Introductory:

- EDPS 30000 - Student Leadership Development
- EDPS 30100 - Peer Counseling Training
- EDPS 31500 - Collaborative Leadership: Interpersonal Skills
- EDPS 31600 - Collaborative Leadership: Cross-Cultural Settings
- EDPS 31700 - Collaborative Leadership: Mentoring
- EDPS 32700 - Classroom Assessment

Educational Studies

Introductory:

- EDST 20000 - History And Philosophy Of Education
- EDST 24800 - Contemporary Issues In American Schools

Entrepreneurship

Introductory:

- ENTR 20000 - Introduction To Entrepreneurship And Innovation

Non-Introductory:

- ENTR 31000 - Marketing And Management For New Ventures
- ENTR 39000 - Special Topics In Entrepreneurship And Innovation
- ENTR 48100 - Consulting For Emerging Enterprises

Human Development and Family Studies

Introductory:

- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 28000 - Diversity In Individual And Family Life

Non-Introductory:

- HDFS 31100 - Child Development
- HDFS 31300 - Adolescent Development
- HDFS 32500 - Health And Health Care For Children And Families
- HDFS 33000 - Sexuality And Family Life
- HDFS 33100 - Skills For Helping Professionals In Individual, Family And Group Settings
- HDFS 33200 - Stress And Coping In Contemporary Families
- HDFS 34100 - Working With Parents
- HDFS 34300 - Assessment And Case Management
- HDFS 34800 - Administration Of Social Service Not-For-Profit Organizations

Psychology

Introductory:

- PSY 12000 - Elementary Psychology
- PSY 25100 - Health Psychology

Non-Introductory:

- PSY 20000 - Introduction To Cognitive Psychology
- PSY 22200 - Introduction To Behavioral Neuroscience
- PSY 23500 - Child Psychology
- PSY 24000 - Introduction To Social Psychology
- PSY 24400 - Introduction To Human Sexuality
- PSY 32400 - Introduction Cognitive Neuroscience
- PSY 33500 - Stereotyping And Prejudice

- PSY 33600 - Issues In Developmental Psychology
- PSY 33700 - Social Cognition
- PSY 34200 - Introduction To Psychology Of Personality
- PSY 35000 - Abnormal Psychology
- PSY 36100 - Human Development I: Infancy And Childhood
- PSY 36700 - Adult Development And Aging
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 42100 - Alcohol Use And Disorders
- PSY 42200 - Genes and Behavior
- PSY 42600 - Language Development
- PSY 42800 - Drugs And Behavior
- PSY 42900 - Hormones And Behavior
- PSY 44400 - Human Sexual Behavior
- PSY 46400 - Research Ethics In Psychological Sciences
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PSY 51100 - Psychophysics
- PSY 59100 - Topics In Psychology

Speech, Language, and Hearing Sciences

Introductory:

- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 21500 - Exploring Audiology And Hearing Science
- SLHS 22700 - Elements Of Linguistics

Non-Introductory:

- SLHS 30100 - Introduction To Cognitive Neuroscience
- SLHS 30200 - Hearing Science
- SLHS 30600 - Introduction To Phonetics
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 40300 - Psycholinguistics
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SLHS 42000 - Introduction To Developmental Speech And Language Disorders
- SLHS 46000 - Assessment Audiology And Aural Rehabilitation Across The Lifespan

Biomedical Engineering Supplemental Selectives - Life Science

Life Science Selective List (6 Credits)

At least 6 credit hours must be established from the following areas: Biophysics/Biochemistry, Cellular/Developmental/Neurobiology, Microbiology, Molecular, Physiology

Only one HK course may be used to complete the Life Science Selective requirements.

Please check myPurdue for course availability and pre-requisites. In some cases instructor permission and/or a departmental override might have to be requested.

Biophysics and Biochemistry

- BCHM 30700 - Biochemistry
- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 51100 - Introduction To X-Ray Crystallography
- BIOL 59500 - Special Assignments
 - Meth Meas Biophys Chem - Credit Hours: 3.00

Cell, Developmental, and Neurobiology

- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 56200 - Neural Systems

Microbiology

- BIOL 43800 - General Microbiology
- BIOL 53300 - Medical Microbiology
- BIOL 59500 Special Assignments
 - Neurobiol Learning & Memory

Molecular Biology

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 44400 - Human Genetics
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins

Physiology

- BIOL 30100 - Human Design: Anatomy And Physiology
- BIOL 30200 - Human Design: Anatomy And Physiology
- BIOL 43200 - Reproductive Physiology
- BIOL 53700 - Immunobiology
- BIOL 55900 - Endocrinology
- BIOL 59900 - Quantitative Physiology
- BMS 51000 - Human Anatomy For Biomedical Scientists And Engineers
- BMS 52500 - Principles Of Neuroanatomy
- BMS 53400 - Systemic Mammalian Physiology
- HK 44000 - Human Diseases And Disorders
- HK 44500 - Principles Of Epidemiology
- SLHS 30200 - Hearing Science

Biomedical Engineering Supplemental Selectives - Technical

Technical Engineering Electives (15 Credits)

Below are the courses approved by the BME Curriculum Committee. Any student can petition to get a course added to this list by completing and submitting the *Course Approval Request Form* (available on the BME website).

Please access myPurdue to confirm the semester courses are offered. They can change due to instructor availability and course offering rotation. In some cases an override may have to be requested.

BME Technical Engineering Elective Policy:

A total of 15 credit hours must be completed with the following requirements:

- Two 3-credit hour Quantitative Breadth (QB) courses, one of which must be a Data Science-focused QB course.
- Six credit hours may be at the 300-level.
- At least one 3 credit hour BME course must be taken at the 400-level from the Biomedical Engineering list.
- The 400-level BME Technical Elective course must be successfully completed with a B or above before any 500-level BME course can be taken. This 400-level tech elective must be a 400-level from the Biomedical Engineering curriculum.
- Only one Regulatory Elective can count toward the technical elective requirement.
- One 3-credit course of the technical elective requirements may be satisfied with any of the following approved mentored experiential learning options (must complete all in the same category):
 - 3 credits of EPICS (200-level or higher)
 - 3 credits of BME Research Scholars Program (BME 39500 Research Scholars I, BME 49500 Research Scholars II, and BME 595 Leadership & Impact in BME)
 - 3 credits of BME 49800 research for credit (with research syllabus)
- Students enrolling in a BME course cross-listed with another department should register for the BME section on myPurdue

Quantitative Breadth (6 credits)

Choose one course from the Data Science Focused QB course list, and a second one from either QB list.

Data Science Focused Quantitative Breadth Courses: (Must choose at least one)

- BME 40100 - Mathematical & Computational Analysis Of Complex System Dynamics In Biology, Medicine, & Healthcare
- BME 44000 - Computational Mechanics In Biomedical Engineering
- BME 45000 - Deep Learning For Medical Imaging
- BME 59500 - Selected Topics In Biomedical Engineering
 - Biostatistics
 - Complex Sysys Theory & Appls
- CS 31400 - Numerical Methods
- CS 35500 - Introduction To Cryptography
- CS 38100 - Introduction To The Analysis Of Algorithms
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- STAT 51200 - Applied Regression Analysis
- STAT 51400 - Design Of Experiments

Additional Quantatative Breadth Classes:

- ABE 30100 - Numerical And Computational Modeling In Biological Engineering

- ABE 45000 - Finite Element Method In Design And Optimization
- BME 45600 - Mathematical Models And Methods In Physiology
- BME 59500 - Selected Topics In Biomedical Engineering
 - Biomedical Signal Processing
 - Continuum Models Biomed Engr
- CHE 45600 - Process Dynamics And Control
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 31100 - Electric And Magnetic Fields
- IE 53300 - Industrial Applications Of Statistics
- ME 30000 - Thermodynamics II
- ME 30900 - Fluid Mechanics
- ME 50900 - Intermediate Fluid Mechanics
- ME 57700 - Human Motion Kinetics
- NUCL 57000 - Fuzzy Approaches In Engineering

Regulatory Courses

- BME 49500 - Selected Topics In Biomedical Engineering
 - Global Persp On Med
 - Tech Design
 - Purdue In Ireland
- BME 56100 - Preclinical And Clinical Study Design
- BME 56200 - Regulatory Issues Surrounding Approval Of Biomedical Devices
- BME 56300 - Quality Systems For Regulatory Compliance

Other Technical Engineering Electives

- ABE 37000 - Biological/Microbial Kinetics And Reaction Engineering
- ABE 44000 - Cell And Molecular Design Principles
- BME 41000 - Neural Engineering
- BME 43000 - Introduction To Bioimaging
- BME 46000 - Cardiovascular Mechanical Support And Devices
- BME 49500 - Selected Topics In Biomedical Engineering
 - Biomedical Microscopy
 - Biomolecular Engineering
 - Gnd Challenges & Accessibility
 - Smart Healthcare Eng
- BME 52100 - Biosensors: Fundamentals And Applications
- BME 52800 - Measurement And Stimulation Of The Nervous System
- BME 54000 - Biomechanics
- BME 55100 - Tissue Engineering
- BME 55300 - Biomedical Optics
- BME 58100 - Fundamentals Of MEMS And Micro-Integrated Systems
- BME 58300 - Biomaterials
- BME 59500 - Selected Topics In Biomedical Engineering
 - Biomedical Signal Processing
 - Cell & Tissue Mechanics
 - Deep Learning

- Electromechanical Robotic Sys
- Eng Princ Biomolec Interactns
- Functional Neuroimaging
- Healthcare Systems Engineering
- Intro To Clinical Medicine
- Med Img & Diagnostic Tech
- Molecular & Cell Mechanics
- MRI Theory
- Musculoskeletal Biol & Mechan
- Neural Mech Health & Disease
- Point Of Care Diagnostics
- Principles Of Tissue Engr
- Regenerative Biol/Tiss Repair
- Surgery & Instrumnt Syst Neuro
- CHE 34800 - Chemical Reaction Engineering
- CHE 51700 - Micro/Nanoscale Physical Processes
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- CHE 55700 - Intelligent Systems In Process Engineering
- ECE 30500 - Semiconductor Devices
- ECE 32100 - Electromechanical Motion Devices
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36800 - Data Structures
- ECE 43800 - Digital Signal Processing With Applications
- ECE 44100 - Distributed Parameter Systems
- ECE 45300 - Fundamentals Of Nanoelectronics
- ECE 45500 - Integrated Circuit Engineering
- ECE 47300 - Introduction To Artificial Intelligence
- IE 34300 - Engineering Economics
- IE 38600 - Work Analysis And Design I
- IE 47200 - Imagine, Model, Make
- IE 53000 - Quality Control
- IE 54600 - Economic Decisions In Engineering
- IE 55800 - Safety Engineering
- IE 57700 - Human Factors In Engineering
- IE 59000 - Topics In Industrial Engineering
 - Assistive Technology Practice
- ME 35200 - Machine Design I
- ME 36300 - Principles And Practices Of Manufacturing Processes
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping
- ME 50500 - Intermediate Heat Transfer
- ME 50700 - Laser Processing
- ME 51300 - Engineering Acoustics
- ME 51700 - Micro/Nanoscale Physical Processes
- ME 55600 - Lubrication, Friction & Wear
- ME 58600 - Microprocessors In Electromechanical Systems
- ME 58800 - Mechatronics - Integrated Design Of Electro-Mechanical Systems
- MSE 38200 - Mechanical Response Of Materials
- MSE 52700 - Introduction To Biomaterials

- MSE 57600 - Corrosion
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 47000 - Fuel Cell Engineering
- NUCL 59700 - Nuclear Engineering Projects I
 - Introduction To Bioelectrics
- CS 30700 - Software Engineering I
- CS 33400 - Fundamentals Of Computer Graphics
- CS 34800 - Information Systems
- CS 40800 - Software Testing
- CS 44800 - Introduction To Relational Database Systems
- CS 47100 - Introduction to Artificial Intelligence

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

Forney Hall of Chemical Engineering, Room G041
 (765) 494-5650 Phone
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Graduate Information

For Graduate Information please see [Chemical Engineering Graduate Program Information](#).

Baccalaureate

Chemical Engineering, BSCHE

About the Program

The Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

Degree Requirements

130 Credits Required

Major Required Courses (46 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 - Chemical Engineering Seminar ♦
 - CHE 42000 - Process Safety Management And Analysis ♦
 - CHE 43500 - Chemical Engineering Laboratory
 - CHE 45000 - Design And Analysis Of Processing Systems
 - CHE 45600 - Process Dynamics And Control ♦
- Chemical Engineering Supplemental Selectives

Other Departmental Courses (84 credits)

[Click here for First-Year Engineering requirements.](#)

- (If pursuing Bachelor of Science in Chemical Engineering, CHM 11600 - General Chemistry is required to graduate, but not required to complete the First Year Engineering program.)
ChE Science, Technology, Engineering and Math Core
 - 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
 - Math Selective I Chemical Engineering Supplemental Selectives (select from list) - Credit Hours: 3.00
 - Math Selective II Chemical Engineering Supplemental Selectives (select from list) - Credit Hours: 3.00
 - PHYS 24100 - Electricity And Optics
 - Technical Selective Chemical Engineering Supplemental Selectives (select from list) - Credit Hours: 3.00
 - Biology Selective - Chemical Engineering Supplemental Selectives (select from list) - Credit Hours: 3.00
 - Engineering Selective - Chemical Engineering Supplemental Selectives (select from list) - Credit Hours: 6.00
- Chemical Engineering General Educ Selective Core
- Behavioral Social Science Selective (satisfies Human Cultures: Behavioral Social Science for core) - Select from Supplemental List - Credit Hours: 3.00

- Humanities Selective (satisfies Human Cultures: Humanities for core) - Select from Supplemental List - Credit Hours: 3.00
- Science, Technology & Society Selective (satisfies Science, Technology, & Society for core) - Select from Supplemental List - Credit Hours: 3.00
- General Education Selective - Select from Supplemental List - Credit Hours: 3.00
- Upper Level General Education Selective - Select from Supplemental List - Credit Hours: 6.00

Optional Concentrations

- Biological Engineering Concentration in Chemical Engineering
- Energy and Environment Concentration in Chemical Engineering
- Materials and Polymers Concentration in Chemical Engineering
- Pharmaceutical Engineering Concentration in Chemical Engineering

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Chemical Engineering Program Requirements

Fall 2nd Year

- CHE 20000 - Chemical Engineering Seminar
- CHE 20500 - Chemical Engineering Calculations
- CHM 26100 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics

16 Credits

Spring 2nd Year

- CHE 21100 - Introductory Chemical Engineering Thermodynamics
- CHE 32000 - Statistical Modeling And Quality Enhancement
- CHM 26200 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- Math Selective I - Credit Hours: 3.00
- Behavioral Social Science Selective - Credit Hours: 3.00

17 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
- Biology Selective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

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

18 Credits

Fall 4th Year

- CHE 40000 - Chemical Engineering Seminar ♦
- CHE 42000 - Process Safety Management And Analysis ♦
- CHE 43500 - Chemical Engineering Laboratory
- CHE 45600 - Process Dynamics And Control ♦
- Humanities Selective - Credit Hours: 3.00
- Upper Level General Education Selective - Credit Hours: 3.00

17 Credits

Spring 4th Year

- CHE 45000 - Design And Analysis Of Processing Systems
- Chemical Engineering Selective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- Science, Technology and Society Selective - Credit Hours: 3.00
- Upper Level General Education Selective - Credit Hours: 3.00

16 Credits

Notes

- 130 Credits required for graduation.
- 2.0 overall and major (Chemical Engineering Core) GPA required for Bachelor of Science in Chemical Engineering degree.

- 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 all other CHE Major Required Courses (Chemical Engineering Core).
- Students may take the ChE General Education Selective Core courses for a letter grade or pass/ no pass option.
- 3 credits of CHE 41100, CHE 41200, CHE 49800, or CHE 49900 may be used to complete the Chemical Engineering Selective.
- 3 credits of CHE 41100, 41200, 49800, or 49800 may be used to complete the Engineering or Technical Selective.
- Students may **not** earn credit in the following courses: ABE 20100, ABE 21000, ABE 30800, ABE 37000, IE 23000, IE 33000, ME 30900 and ME 31500.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Biological Engineering Concentration in Chemical Engineering

3 of the credits must be from CHE courses.

3 of the credits must be from ENGR courses.

Biological Engineering Concentration (9 Credits)

- ABE 58000 - Process Engineering Of Renewable Resources
- BCHM 56100 - General Biochemistry I
- BME 49500 - Selected Topics In Biomedical Engineering
 - Biomolecular Engineering
 - Computational Cell Biology
- BME 52100 - Biosensors: Fundamentals And Applications
- BME 55100 - Tissue Engineering
- CHE 41100 - Chemical Engineering Science Research Problems or
- CHE 49800 - Undergraduate Thesis Research I

- CHE 52500 - Biochemical Engineering
- CHE 59700 - Special Topics In Chemical Engineering
 - Engr Appl Biological Molecules
 - Tissue Engineering
- CHM 33300 - Principles Of Biochemistry
- CHM 53300 - Introductory Biochemistry
- ME 59700 - Advanced Mechanical Engineering Projects I
 - Bio-energy and Biofuels

Note

- Students cannot earn credit in both CHE 52500 and ABE 58000.

Chemical Engineering General Educ Selective Core

ChE General Education Selective Core Requirements

For a complete listing of course options for the **Behavioral Social Science Selective, Humanities Selective, and Science, Technology & Society Selective**, please visit the Provosts website.

For the **General Education Selective**, students must complete any course in the approved subjects below offered by the College of Liberal Arts, the Krannert School of Management and/or the Honors College, provided the course is open to students in the offering department and the student qualifies to take the course.

For the **Upper Level General Education Selectives**, students must complete courses in the approved subjects below at the 30000 level or above, or from courses with a required prerequisite in the same department.

Approved subjects in these colleges include:

AAS, AD, AGECE, AMST, ANTH, ARAB, ASAM, ASL, CHNS, CLCS, CMPL, COM, DANC, ECON, ENGL, FLL/LC, FR, GER, GREK, HDFS, HEBR, HIST, HONR, IDIS, ITAL, JWST, JPNS, LALS, LATN, LING, MARS, MUS, PHIL, POL, PSY, PTGS, REL, RUSS, SLHS, SOC, SPAN, THTR, WGSS

Chemical Engineering Supplemental Selectives

Biology Selectives (3 credits)

- BIOL 23000 - Biology Of The Living Cell
- BIOL 23100 - Biology III: Cell Structure And Function
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 53300 - Introductory Biochemistry
- BCHM 30700 - Biochemistry
- BCHM 56100 - General Biochemistry I

Chemical Engineering Selective (3 credits)

- ABE 58000 - Process Engineering Of Renewable Resources

- CHE 33000 - Principles Of Molecular Engineering
- CHE 41100 - Chemical Engineering Science Research Problems
- CHE 41200 - Chemical Engineering Design Research Problems
- CHE 44200 - Chemistry And Engineering Of High Polymers
- CHE 46100 - Biomedical Engineering
- CHE 46300 - Applications Of Chemical Engineering Principles
- CHE 49700 - Special Topics In Chemical Engineering - Engr In Hlthcare Deliv Honors
- CHE 49800 - Undergraduate Thesis Research I
- CHE 49900 - Undergraduate Thesis Research II
- CHE 51700 - Micro/Nanoscale Physical Processes
- CHE 52500 - Biochemical Engineering
- CHE 53600 - Particulate Systems
- CHE 53800 - Design And Processing Of Particulate Products
- CHE 54000 - Transport Phenomena
- CHE 54300 - Polymerization Reaction Engineering And Reactor Analysis
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- CHE 55000 - Optimization In Chemical Engineering
- CHE 55100 - Principles Of Pharmaceutical Engineering
- CHE 55300 - Pharmaceutical Process, Development And Design
- CHE 55500 - Computer Integrated Process Operations
- CHE 55700 - Intelligent Systems In Process Engineering
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering

Engineering Selective (6 credits)

- CHE 40100 - Cooperative Seminar III
- Any Chemical Engineering Selective (see above)
- Any AAE, ABE, BME, CE, CEM, ECE, IE, MSE, ME and NUCL Course (*Except: ABE 20100, 21000, 30800, 37000, IE 23000, 33000, and ME 30900, 35100*)

Math Selective (6 or 7 credits)

Option 1: (6 Credits)

Math Selective I:

- MA 26500 - Linear Algebra

Math Selective II:

- MA 26600 - Ordinary Differential Equations

Option 2: (7 Credits)

Math Selective I:

- MA 35100 - Elementary Linear Algebra

Math Selective II:

- MA 36600 - Ordinary Differential Equations

Option 3: (7 Credits)

Math Selective I:

- MA 26200 - Linear Algebra And Differential Equations

Math Selective II:

- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences or
- MA 51400 - Numerical Analysis or
- ME 58100 - Numerical Methods In Mechanical Engineering

Technical Selective (3 credits)

- BCHM 10000 - Introduction To Biochemistry
- BCHM 22100 - Analytical Biochemistry
- BCHM 27500 - Honors Course - Lower Division
- BCHM 29000 - Experimental Design Seminar
- BCHM 29800 - Introduction To Biochemistry Research
- BCHM 29801 - Head Start To Introductory Biochemistry Research
- BCHM 30700 - Biochemistry (If not used for Biology Selective)
- BCHM 30900 - Biochemistry Laboratory
- BCHM 32200 - Analytical Biochemistry II
- BCHM 36100 - Molecules
- BCHM 39000 - Professional Development Seminar
- BCHM 40000 - Biochemistry Study Abroad
- BCHM 46200 - Metabolism
- BCHM 46500 - Biochemistry Of Life Processes
- BCHM 47500 - Honors Course - Upper Division
- BCHM 49000 - Undergraduate Seminar
- BCHM 49500 - Special Assignments
- BCHM 49800 - Research In Biochemistry
- BCHM 49801 - Head Start To Biochemistry Research
- BCHM 49900 - Honors Thesis In Biochemistry
- BCHM 53600 - Biological And Structural Aspects Of Drug Design And Action
- BCHM 56100 - General Biochemistry I (If not used for Biology Selective)
- BCHM 56200 - General Biochemistry II
- BCHM 59500 - Current Topics In Biochemistry
- BIOL - Any biology course excluding BIOL 11000, 13500, 14600, and 14700
- CHE 49700 - Chemical Engineering Study Abroad
- CHM 22400 - Introductory Quantitative Analysis
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 32100 - Analytical Chemistry I
- CHM 32300 - Analytical Chemistry I Honors
- CHM 33300 - Principles Of Biochemistry
- CHM 34200 - Inorganic Chemistry
- CHM 42400 - Analytical Chemistry II
- CHM - Any chemistry course above CHM 42400
- CS - Any computer science course
- EAPS - Any Earth and Atmospheric Science course
- EPCS - Any 3 credit hours of EPICS excluding EPCS 11100 & 11200

- Engineering Selective - Any Engineering Selective
- GEP - Any 3 credit hours of Global Engineering Programs 20000 and above
- MGMT 20000 - Introductory Accounting or
- MGMT 20010 - Business Accounting
- MGMT 24300 - Contemporary Thought Of Minorities In Management
- MA 30100 - An Introduction To Proof Through Real Analysis
- MA 34100 - Foundations Of Analysis
- MA 36200 - Topics In Vector Calculus
- MA 37300 - Financial Mathematics
- MA - Any math course above MA 37300
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- HSOP 50100 - Food And Drug Law I
- PHYS - Any physics course 30000 or above
- STAT - Any Statistic course 51100 or above

Energy and Environment Concentration in Chemical Engineering

3 of the credits must be from CHE courses.

3 of the credits must be from ENGR courses.

Energy and Environment Concentration (9 Credits)

- 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
- CE 45700 - Air Pollution Control And Design
- CHE 41100 - Chemical Engineering Science Research Problems or
- CHE 49800 - Undergraduate Thesis Research I
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering
 - Advanced Solar Energy Conversn
 - Sys Analysis of Energy Prod
 - Battery Systems Lab
 - Energy Storage Systems
 - Org Elect Matls and Devices
- ME 41800 - Engineering Of Environmental Systems And Equipment
- ME 59700 - Advanced Mechanical Engineering Projects I
 - Bio-energy and Biofuels
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 47000 - Fuel Cell Engineering

- NUCL 50300 - Radioactive Waste Management
- NUCL 56300 - Direct Energy Conversion

Materials and Polymers Concentration in Chemical Engineering

3 of the credits must be from CHE courses.

3 of the credits must be from ENGR courses.

Materials and Polymers Concentration (9 Credits)

- CHE 41100 - Chemical Engineering Science Research Problems or
- CHE 49800 - Undergraduate Thesis Research I

- CHE 44200 - Chemistry And Engineering Of High Polymers
- CHE 51700 - Micro/Nanoscale Physical Processes
- CHE 53600 - Particulate Systems
- CHE 54300 - Polymerization Reaction Engineering And Reactor Analysis
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- CHE 59700 - Special Topics In Chemical Engineering
 - Organic Electronic Materials & Devices
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 51000 - Microstructural Characterization Techniques
- MSE 51200 - Powder Processing
- MSE 52500 - Struct-Property Relationships Of Engineering Polymers
- MSE 55600 - Fracture Of Materials
- MSE 56000 - The Production Of Inorganic Materials
- MSE 59700 - Selected Topics In Materials Engineering
 - Manufacturing Adv Compst
 - Biomaterials
 - Charatzn Adv Compst Matls

Pharmaceutical Engineering Concentration in Chemical Engineering

Pharmaceutical Engineering Concentration (9 Credits)

3 of the credits must be from CHE courses

- CHE 41100 - Chemical Engineering Science Research Problems or
- CHE 49800 - Undergraduate Thesis Research I

- CHE 53600 - Particulate Systems
- CHE 55100 - Principles Of Pharmaceutical Engineering
- CHE 55300 - Pharmaceutical Process, Development And Design
- CHE 55500 - Computer Integrated Process Operations

- CHE 55700 - Intelligent Systems In Process Engineering
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- HSOP 50100 - Food And Drug Law I

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.

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 specialty area of choice. Specialty areas include architectural, construction, environmental, geomatics, geotechnical, hydraulics, materials, structures, transportation, and infrastructure system engineering.

Senior design projects consist of real-world applications in theoretical role play. Recent projects have included designing possible layouts for the US-231 bypass that runs 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. Another project explored a reuse design for the Tippecanoe County Superfund Site Sanitary Landfill. 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

The Civil Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

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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. Another project explored a reuse design for the Tippecanoe County Superfund Site Sanitary Landfill. Students participate in these projects from site exploration, to budget management, to mock designs.

Degree Requirements

132 Credits Required

Civil Engineering Major Courses

Required CE Courses (33 credits)

Grade of C- or better required

- CE 20300 - Principles And Practice Of Geomatics
- CE 29700 - Basic Mechanics I (Statics) ♦
- CE 29202 - Contemporary Issues In Civil Engineering ♦ (1 of 2 credits)
- CGT 16400 - Graphics For Civil Engineering And Construction
- CE 23100 - Engineering Materials I
- CE 27000 - Introductory Structural Mechanics
- CE 29800 - Basic Mechanics II Dynamics ♦
- CE 33100 - Engineering Materials II
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- CE 39800 - Introduction To Civil Engineering Systems Design
- CE 49800 - Civil Engineering Design Project

CE Technical Electives (30 credits)

[Click here for the Civil Engineering Technical Electives](#)

- 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 (51-53 credits)

[Click here for First-Year Engineering Requirements](#)

Grade of C- or better is required for all Other Departmental/Program Course Requirements.

(If pursuing Bachelor of Science in Civil Engineering, ENGL 10600 or ENGL 10800 or HONR 19903 or SCLA 10100 are required to meet degree requirements. Additionally, CS 15900 or CHM 11600 are required to meet degree requirements, but not required to complete the First Year Engineering program.)

- MA 26100 - Multivariate Calculus ♦
- PHYS 24100 - Electricity And Optics
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- STAT 51100 - Statistical Methods
- ME 20000 - Thermodynamics I
- CE Basic Science Civil Engineering Basic Science Requirement Selectives - Credit Hours: 3.00 (satisfies Science, Technology & Society for core)

General Education Electives (18 credits)

[Click here for the Civil Engineering General Education Requirements](#)

- General Education Elective I - Credit Hours: 3.00 (satisfies Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (satisfies Behavioral/Social Science for core)
- 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 (CE 29202 1 of 2 credits & CE 39201) - Credit Hours: 3.00

Optional Concentrations

Architectural Engineering Concentration in Civil Engineering

Construction Engineering Concentration in Civil Engineering

Environmental Engineering Concentration for Civil Engineering

Geomatics Engineering Concentration in Civil Engineering

Geotechnical Engineering Concentration in Civil Engineering

Hydraulic and Hydrologic Engineering Concentration in Civil Engineering

Materials Engineering Concentration in Civil Engineering

Structural Engineering Concentration in Civil Engineering

Transportation and Infrastructure Systems Engineering Concentration in Civil Engineering

University Core Requirements

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

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Civil Engineering Program Requirements

Fall 2nd Year

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

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

16 Credits

Spring 3rd Year

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

17 Credits

Fall 4th Year

- ME 20000 - Thermodynamics I
- 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
- General Education Elective III - Credit Hours: 3.00

18 Credits

Spring 4th Year

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

18 Credits

Note

- Students must have a graduation index of 2.0 and an index of 2.0 in all CE courses

- Students must have a grade of C- or better in all Required CE Courses (including CE 39201) and in Other Departmental/Program Course Requirements.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

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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.

Requirements for the Minor (18 credits)

Required Courses (12 credits)

- 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 Courses - Choose Two (6 credits)

- CE 37100 - Structural Analysis I
- CE 47900 - Design Of Building Components And Systems
- CE 51401 - Building Controls
- CE 51501 - Building Energy Audits
- ME 51800 - Analysis Of Thermal Systems

Notes

- Must have a grade of "C" or better in all of the courses.

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

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The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Architectural Engineering Concentration in Civil Engineering

Architectural Engineering (ArchE) deals with integrated design, construction and operation of buildings. It includes all engineering aspects related to the built environment: building envelope, mechanical systems (HVAC), electrical systems, lighting systems, construction, indoor environmental quality and human comfort - and is therefore related to multi-disciplinary research and education.

Architectural Engineering Concentration (15 Credits)

- CE 31100 - Architectural Engineering
- CE 37100 - Structural Analysis I
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
Select 1 of the following courses
- CE 51300 - Lighting In Buildings
- CE 51401 - Building Controls
- CE 51501 - Building Energy Audits

Civil Engineering Basic Science Requirement Selectives

Civil Engineering Basic Science Requirement Selectives

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ and
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 28600 - Introduction To Ecology And Evolution
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 14600 - Introduction To Biology
- BIOL 23000 - Biology Of The Living Cell
- EAPS 10000 - Planet Earth ♦
- EAPS 10400 - Oceanography ♦
- EAPS 11100 - Physical Geology
- EAPS 12000 - Introduction To Geography ♦

- EAPS 22100 - Survey Of Atmospheric Science

Civil Engineering General Education Requirements

General Education Requirements for CE Students

CE Students must complete a minimum of 18 credit hours of General Education Elective Courses (COM 11400: Speech and ENGL 10600 English Composition are required and separate from the General Education Electives).

Three credit hours of General Education Electives is covered with the combination of 1 cr. from CE 29202 (2 cr.) + CE 39201 (2 cr.).

CE students must complete CE 29202 and 39201 and receive a grade of C- or better. It is recommended that CE students take CE 39201 in their Junior year.

Additional General Education Courses

The 15 credit hours of additional General Education courses must be chosen subject to the requirements listed below. COM 11400 cannot be used to fulfill any of these requirements:

- A minimum of 6 credit hours must be taken in subjects designated as Social Sciences; one course must be taken from the Foundational Behavioral/Social Sciences approved list.
- A minimum of 6 credit hours must be taken in subjects designated as Humanities; one course must be taken from the Foundational Humanities approved list.
- A minimum of 6 credit hours must be taken from courses:
 - at the 30000-level or above OR
 - having a prerequisite (Non-Introductory) in the same subject.
 - Example: SPAN 10200 is a humanities elective that is non-introductory (has a prerequisite of SPAN 10100) and also meets the foundational humanities approved list.
- If a student desired to take classes in a foreign language subject, credit is now allowed for language courses in the student's native tongue(s), but literature, culture, drama, and related courses are allowed.
- All courses must be taken for a grade. However, credit by examination or granted credit, conditioned solely at the discretion of the awarding department, can be used to satisfy any part of these requirements.
- No Course may be used more than once even if the offering department allows it to be repeated for credit.

Other Recommendations

- No more than 6 credits of General Education courses should be taken in any one semester.
- It is highly recommended that ECON 25100 be taken.

All Courses are subject to approval when filing the Plan of Study.

- Preapproved courses are listed on the Plan of Study Web Tool at <http://newton.ecn.purdue.edu/~ce/POS>. This list is reviewed periodically. To ensure a course will count toward requirements, submit a Plan of Study for review to the CE Main Office with all necessary signatures.

Course used to satisfy the General Education requirements must be drawn from the following list of subjects.

Most courses offered in these subjects are allowable, provided that a course is open to CE students and a course is not focused primarily of professional training, natural science or mathematics.

- Social Sciences
 - AGECE, ANTH, ASL, HDFS, COM, ECON, POL, PSY, SLHS, SOC
- Humanities
 - AAS, AD, AMST, ARAB, ASAM, CHNS, CLCS, CMPL, DANC, ENGL, LC, FR, GER, GREK, HEBR, HIST, IDIS, ITAL, JWST, JPNS, LALS, LATN, LING, MARS, MUS, PHIL, PTGS, REL, RUSS, SPAN, THTR, WGSS

Civil Engineering Technical Electives

Technical Elective Requirements for CE Students

1.) **Total credit requirement:** CE students must complete thirty (30) credits of technical electives. The technical elective plan of study must be consistent with career objectives. For instance, one can elect to emphasize a particular area of civil engineering by taking several courses in that area, or one can choose a general program in civil engineering by taking courses in several emphasis areas.

2.) **Minimum CE credit requirement and associated rules:** A minimum of twenty-one (21) credits of technical electives must come from CE-designated courses. The remaining nine (9) credit hours required may come from a combination of courses that are not CE-designated but have been approved for technical elective credit and from additional CE-designated courses. See below for details regarding approved technical electives that are not CE-designated courses. All technical electives must be selected in support of the career objectives of the student and be approved by the advisor.

3.) **Breadth requirement:** At least four (4) courses must be completed from the following list, guaranteeing sufficient breadth of study in at least four of the emphasis areas:

- ARCH: CE 31100
- CON: CE 22200
- ENV: CE 35000
- GEM: CE 40800
- GEO: CE 38300
- HYD: CE 44000
- STR: CE 37100

- TRA: CE 36100

4.) **Design content requirement:** At least three (3) courses must be completed from the following list, guaranteeing sufficient design content:

- ARCH: CE 41300, 41400
- CON: CE 52200, 52300, 52700
- ENV: CE 35300, 45600, 45700
- GEM: CE 30300, 30600
- GEO: CE 48300, 58300, 58400, 58500
- HYD: CE 44000, 54100, 54300, 54600, 54900
- MAT: CE 53000, CE 53500
- STR: CE 47000, 47300, 47900
- TRA: CE 36100, 46100, 56200, 56300, 56500, 56700

5.) **Sequence requirement:** A sequence is defined as a minimum of two (2) technical elective courses from a given CE emphasis area. Each student must complete at least two (2) such sequences of technical electives. Note that completing four courses from a single CE area of emphasis does not meet this requirement; the emphasis areas must be distinct. Certain non-CE designated courses may be used in satisfying this requirement; see details below in section titled, "Technical Elective Policies for non-Civil Engineering Courses", item 6.

6.) **All technical elective courses must be taken for a grade.**

Technical Elective Policies for non-Civil Engineering Courses

Students in the School of Civil Engineering are encouraged to choose technical electives that are consistent with their career objectives. In many cases, this can involve courses that are offered outside of the School. The purpose of the policies below is to provide general criteria for appropriate technical elective courses offered by other departments.

1.) The following categories of courses offered outside of Civil Engineering are generally approved as technical electives, subject to certain restrictions described later:

- 300-, 400-, or 500-level courses offered by any school, department, or division in the College of Engineering or the College of Science at Purdue University.
- All Engineering Projects in Community Service (EPCS) courses, including those at the 100- and 200-level, up to a maximum of three (3) credits.
- All 300- and 400-level Aerospace Studies (AFT), Naval Science (NS), and Military Science and Leadership (MSL) courses, up to a maximum of six (6) credits, applicable only to students who have completed four semesters in a Purdue ROTC program.
- Management (MGMT) courses at a level equal to or higher than MGMT 20000.
- Entrepreneurship (ENTR) courses at a level equal to or higher than ENTR 20000.
- The following 200-level courses:
 - CEM 20100
 - ECE 20100
 - CHM 25500
 - CHM 25600
 - CHM 25700
 - CHM 26100
 - CHM 26105
 - CHM 26200
 - CHM 26205
 - CHM 26505
 - CHM 26605.

2.) The following courses are considered to be substantially equivalent to courses required for the BSCE degree and thus are not eligible to be considered as technical electives:

- Aeronautical & Astronautical Engineering: AAE 33300 - Fluid Mechanics, AAE 33301 - Fluid Mechanics Laboratory.
- Electrical & Computer Engineering: ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- Industrial Engineering: IE 33000 - Probability and Statistics In Engineering II.
- Management: MGMT 30500 - Business Statistics.
- Mathematics: MA 30300 - Differential Equations and Partial Differential Equations for Engineering and the Sciences, MA 35100 - Elementary Linear Algebra
- Mechanical Engineering: ME 30900 - Fluid Mechanics, ME 32300 - Mechanics Of Materials
- Nuclear Engineering: NUCL 32000 - Introduction To Materials For Nuclear Applications
- Physics: PHYS 31000 - Intermediate Mechanics, PHYS 50300 - Fundamental Concepts Of Physics, PHYS 50400 - Principles Of Physics I, PHYS 50500 - Principles Of Physics II.
- Statistics: STAT 30100 - Elementary Statistical Methods, STAT 35000 - Introduction To Statistics, STAT 50100 - Experimental Statistics I, STAT 50200 - Experimental Statistics II, STAT 50300 - Statistical Methods For Biology.

3.) All courses outside of Civil Engineering having the Coop or Internship course attribute or associated with cooperative education, internships, industrial practice, etc. are not eligible to be considered as technical electives.

4.) The following variable title or individual study courses do not have general approval to be considered as technical electives; however, a student may send a written request to the CE Undergraduate Office to initiate the process to have a specific course from this list considered for technical elective credit:

- Aeronautical & Astronautical Engineering: AAE 49000, AAE 59000
- Agricultural & Biological Engineering: ABE 49500, ABE 49800, ABE 49900, ABE 59000, ABE 59100, ABE 59200
- Biomedical Engineering: BME 39500, BME 49500, BME 49800, BME 59500, BME 59600
- Biological Sciences: BIOL 39500, BIOL 39800, BIOL 49400, BIOL 49500, BIOL 49600, BIOL 49700, BIOL 49800, BIOL 49900, BIOL 50000, BIOL 54200, BIOL 59500
- Chemistry: CHM 49000, CHM 49900, CHM 50200, CHM 59900
- Chemical Engineering: CHE 41100, CHE 41200, CHE 49700, CHE 49800, CHE 49900, CHE 59700
- Computer Science: CS 39000, CS 49000, CS 49700, CS 59000, CS 59100
- Construction Engineering & Management: CEM 49700
- Earth & Atmospheric Science: EAS 39100, EAS 49400, EAS 49700, EAS 55000, EAS 59100
- Electrical & Computer Engineering: ECE 49500, ECE 49600, ECE 59500
- Engineering Education: ENE 49800, ENE 59000, ENE 59500
- Entrepreneurship: ENTR 39000, ENTR 49000
- Environmental & Ecological Engineering: EEE 49500
- Global Engineering Program: GEP 30000, GEP 40000
- Industrial Engineering: IE 49000, IE 49900, IE 59000, IE 59500
- Interdisciplinary Engineering: IDE 49500
- Management: MGMT 29000, MGMT 39000, MGMT 49000, MGMT 59000
- Materials Engineering: MSE 49000, MSE 49700, MSE 49900, MSE 59500, MSE 59700
- Mathematics: MA 39000, MA 49000, MA 59800
- Mechanical Engineering: ME 49700, ME 49800, ME 49900, ME 59500, ME 59700
- Nuclear Engineering: NUCL 49700, NUCL 49800, NUCL 59700
- Physics: PHYS 47000, PHYS 49000, PHYS 50700, PHYS 57000, PHYS 59000, PHYS 59300, PHYS 59500
- Science: SCI 49000
- Statistics: STAT 39000, STAT 49000, STAT 51500, STAT 59700, STAT 59800

5.) Any course not included in the categories described in item #1 above does not have general approval to be considered as a technical elective; however, a student may send a written request to the CE Undergraduate Office to initiate the process to have a specific course considered for technical elective credit.

6.) CEM, LS and EEE courses may be used to satisfy the sequence requirement for technical electives in the areas of Construction Engineering, Geomatics Engineering, and Environmental Engineering, respectively. No other non-CE courses may be used to satisfy the sequence requirement.

Construction Engineering Concentration in Civil Engineering

Construction engineers help build a better world by designing, planning, and managing structures, such as highways, bridges, airports, railroads, buildings, dams, and reservoirs. Construction of such projects requires knowledge of engineering management principles and business procedures, economics, and human behavior. Construction engineers engage in the design of structures along with cost estimating, materials procurement, equipment selection, and applying science with engineering methods.

Construction Engineering Concentration (18-19 Credits)

- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
Select 1 of the following courses
- CE 47000 - Structural Steel Design
- CE 47300 - Reinforced Concrete Design
- CE 48300 - Geotechnical Engineering II
Select 1 of the following courses
- CE 32201 - Project Control And Life Cycle Execution Of Constructed Facilities
- CE 52100 - Construction Business Management
- CEM 48500 - Legal Aspects Of Construction Engineering
Select 1 of the following courses
- MGMT 20000 - Introductory Accounting
- MGMT 20010 - Business Accounting

Environmental Engineering Concentration for Civil Engineering

Required Courses (30 credits)

- CE 35000 - Introduction To Environmental And Ecological Engineering or
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35200 - Biological Principles Of Environmental Engineering
- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability
- CE 38300 - Geotechnical Engineering I
- CE 40800 - Geographic Information Systems In Engineering
- CE 44000 - Urban Hydraulics
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45600 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 59700 - Civil Engineering Projects - *Water Chemistry*

Geomatics Engineering Concentration in Civil Engineering

Geomatics engineers manage global geospatial resources and infrastructure. They design, develop, and operate systems for collecting, analyzing, and utilizing geospatial information about the land, infrastructure, the oceans, natural resources, and the environment.

Geomatics Engineering Concentration (15 Credits)

- CE 30300 - Engineering Surveying
 - CE 36100 - Transportation Engineering
 - CE 40800 - Geographic Information Systems In Engineering
 - CE 49700 - Civil Engineering Projects
 - Cadastral Surveying
- Select 1 of the following courses
- CE 44000 - Urban Hydraulics
 - CE 56200 - Geometric Design Of Highways

Geotechnical Engineering Concentration in Civil Engineering

Geotechnical engineering is a branch of engineering dealing with the analysis, design, and construction of foundations, slopes, retaining structures, and other systems that are made of or are supported by soil or rock. The research ranges in nature from analytical and numerical analysis of geotechnical problems to constitutive modeling, experimental modeling and design-oriented research. Historically, the [Geotechnical Faculty](#) have continuously maintained a balance between theoretical, experimental, and design-oriented research, and this tradition remains true today.

Geotechnical Engineering Concentration (19 Credits)

- CE 37100 - Structural Analysis I
 - CE 38300 - Geotechnical Engineering I
 - CE 47300 - Reinforced Concrete Design
 - CE 48300 - Geotechnical Engineering II
- Select 1 of the following courses
- CE 35000 - Introduction To Environmental And Ecological Engineering
 - CE 35500 - Engineering Environmental Sustainability
 - CE 44300 - Introductory Environmental Fluid Mechanics
- Select 1 of the following courses
- CE 58000 - Advanced Geotechnical Engineering
 - CE 58300 - Slopes And Retaining Structures
 - CE 58400 - Foundation Analysis And Design
 - CE 59300 - Environmental Geotechnology
 - CE 59700 - Civil Engineering Projects - Ground Engineering

Hydraulic and Hydrologic Engineering Concentration in Civil Engineering

Hydraulic and hydrologic engineers work to prevent floods, to supply water for cities, industry and irrigation, to treat wastewater, to protect beaches, and to manage and redirect rivers. In the hydraulics and hydrology profession, you will be using scientific study of the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.

Hydraulic and Hydrologic Engineering Concentration (9 Credits)

- CE 44000 - Urban Hydraulics
- CE 44300 - Introductory Environmental Fluid Mechanics
Select 1 of the following courses
- CE 54000 - Open Channel Hydraulics
- CE 54200 - Hydrology

Materials Engineering Concentration in Civil Engineering

Material engineers improve the road you travel on, the coal used to fuel a factory, and the sidewalk in your neighborhood. Through their study of asphalt and bituminous materials, roads and sidewalks last longer and fuels, like coal, are more energy-efficient.

Materials Engineering Concentration (9 Credits)

- CE 53000 - Properties And Production Of Concrete
- CE 53500 - Bituminous Materials And Mixtures
- CE 53800 - Experimental Methods In Construction Materials Research

Structural Engineering Concentration in Civil Engineering

What gives an engineer confidence to project and build something as large and graceful as the Golden Gate Bridge (the creation of late Purdue professor Charles A. Ellis), knowing that it has to withstand the demands of gravity, wind, and earthquakes? Why did Gaudi think of the Sagrada Familia "upside-down" before he started building it? Who decides how much reinforcing steel goes into a reinforced concrete column supporting 100 floors in a skyscraper? And how do they make that decision? How far apart can we place the supports of steel girders in our bridges?

Structural Engineering Concentration (19 Credits)

- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CE 47000 - Structural Steel Design
- CE 47300 - Reinforced Concrete Design
- CE 47400 - Structural Analysis II
- CE 48300 - Geotechnical Engineering II

Transportation and Infrastructure Systems Engineering Concentration in Civil Engineering

As a branch of civil engineering, transportation engineering has a history that is long and illustrious and a future that is full of promise. The National Academy of Engineering has identified restoring urban infrastructure and implementing smart mobility as grand challenges. We need coordinated approaches to tackle transportation issues by integrating car, rail, bus, truck, walking, and bicycling to meet sustainability goals. Currently, we see how smartphones have enabled ride-sharing services such as Uber and Lyft, while taxis and GPS-equipped cars and trucks are providing massive amounts of data that were unimaginable a few years

back. Before long, it may be common to have vehicles talking to infrastructure (V2I) and vehicles talking to each other (V2V). Traffic flow with automated vehicles is expected to be much safer and more efficient than with human drivers.

Transportation and Infrastructure Systems Engineering Concentration (12 Credits)

- CE 36100 - Transportation Engineering
- CE 38300 - Geotechnical Engineering I
- CE 46300 - Highway Transportation Characteristics
- CE 59400 - Transportation Systems Analysis

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 Construction Engineering and Management program is accredited by the Engineering Accreditation Commission of ABET.

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.

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Construction Engineering Management

Degree Requirements

130 Credits Required

Construction Engineering Major Courses

Required CEM Courses (64 credits)

- 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
- 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
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- CE 34000 - Hydraulics
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CEM 48500 - Legal Aspects Of Construction Engineering
- CEM 42500 - Construction Practice Project
- CE 29700 - Basic Mechanics I (Statics)
- CE 52100 - Construction Business Management
- 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
- ME 20000 - Thermodynamics I
- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00

Other Departmental/Program Course Requirements (48-50 credits)

[Click here for First-Year Engineering requirements.](#)

- MGMT 20000 - Introductory Accounting
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- PHYS 24100 - Electricity And Optics
- STAT 51100 - Statistical Methods

General Education Electives (18 credits)

- General Education Elective I - Credit Hours: 3.00 (satisfies Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (satisfies Behavioral/Social Science for core)
- General Education Elective III - Credit Hours: 3.00 (satisfies Science, Tech & Society for core)
- General Education Elective IV - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00
- General Education Elective VI (CEM 28000 and CEM 38000) - Credit Hours: 3.00

Additional Requirements

Construction Engineering and Management Supplemental General Educ Requirements

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or

- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Construction Engineering and Management Program Requirements

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

Summer 1st Year

- CEM 19100 - Construction Internship I

0 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

18 Credits

Summer 2nd Year

- CEM 29100 - Construction Internship II
- Gen Ed Elective I - Credit Hours: 3.00

3 Credits

Fall 3rd Year

- MA 26500 - Linear Algebra
- CE 29800 - Basic Mechanics II Dynamics
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- STAT 51100 - Statistical Methods
- CEM 38000 - Construction Engineering Professional Development II
- CEM 32100 - Construction Engineering Materials Lab

14 Credits

Spring 3rd Year

- 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
- Technical Elective I - Credit Hours: 3.00

16 Credits

Summer 3rd Year

- CEM 39100 - Construction Internship III
- Gen Ed Elective II - Credit Hours: 3.00

3 Credits

Fall 4th Year

- 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
- Technical Elective II - Credit Hours: 3.00

16 Credits

Spring 4th Year

- CEM 48500 - Legal Aspects Of Construction Engineering
- CE 52100 - Construction Business Management

- ME 20000 - Thermodynamics I
- General Education Elective IV - Credit Hours: 3.00
- General Education Elective V - Credit Hours: 3.00

15 Credits

Note

- Students must have a graduation index of 2.0.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Construction Engineering Minor

Requirements for the Minor (15 credits)

Required Courses (6 credits)

- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- CEM 19100 - Construction Internship I ¹
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- CEM 29100 - Construction Internship II ^{1,2}

Elective Courses (9 credits)

- CEM 30200 - Practical Applications For Construction Engineering
- CEM 32400 - Human Resource Management In Construction
- CEM 45500 - Temporary Structures In Construction
- CEM 48500 - Legal Aspects Of Construction Engineering

- CEM 49700 - Construction Engineering Projects
- CE 30000 level or above³ - Courses related to construction must be submitted to the Chair of the Undergraduate Curriculum Committee for CEM

Notes

- Interested students should contact the Director of Internships at cem@purdue.edu
- This minor is available to students in the College of Engineering.
- Courses must be completed with a grade of "C-" or better.
- No more than one substitution from either of the above two categories is acceptable to be eligible for the Construction Engineering Minor. All courses must be taken for a grade; therefore, a transfer course must meet University guidelines for appropriate transfer of grade.
- Students may not be on academic probation to enroll in upper division work.
- Generally, all of the above prescribed minor courses must be taken at the Purdue West Lafayette campus to be eligible for the Construction Engineering Minor. The only exceptions to this rule are as follows:
 1. One equivalent transfer course from another university can be used for an elective if the course is from an Engineering 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 Chair of the Undergraduate Curriculum Committee for the Division of Construction Engineering and Management (CEM).
 - Exception: A student enrolled in the School of Civil Engineering cannot seek a Minor in Construction Engineering.
 - ¹ The internship shall be arranged by the student and approved by the Director of Internships for CEM.
 - ² An equivalent professional or research experience approved by the Chair of the Undergraduate Curriculum Committee for CEM.
 - ³ Courses (or topics) that satisfy this requirement may have a prerequisite. The student should consult the academic advisor in advance.

Disclaimer

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The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Construction Engineering and Management Supplemental General Educ Requirements

Courses

- 3 Credit Requirement that satisfies Humanities for core
- 3 Credit Requirement that satisfies Behavior/Social Science for core
- 3 Credit Requirement that satisfies Science, Tech & Society for core
- 6 credits in non-introductory courses
- CEM 28000 - Construction Engineering Professional Development I
- CEM 38000 - Construction Engineering Professional Development II

Construction Engineering and Management Supplemental Information

Technical Electives (6 credits)

- AAE 30000:59999
- AAE 30000:59999
- ABE 30000:59999
- BME 30000:59999
- CE 30000:59999 (Except CE 38000, 49700, 59700)
- CEM 30000:59999
- CHE 30000:99999
- ECE 30000:59999
- IDE 30000:59999
- IE 30000:59999
- ME 30000:59999
- MSE 30000:59999
- NUCL 30000:59999

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

The Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

Degree Requirements

125 Credits Required

Computer Engineering Major Courses (53 credits)

Required Core Courses (30 credits)

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 26400 - Advanced C Programming
- ECE 20875 - Python For Data Science
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36800 - Data Structures

Required Seminars (3 credits)

- ECE 29401 - Electrical And Computer Engineering Sophomore Seminar
- ECE 39401 - Professional Communications And Diversity
- ECE 49401 - Professional Communication Capstone

Senior Design Requirement - Choose One Option (4 credits)

The CmpE Core Requirements listed above must be completed before taking Senior Design.

Option 1 (4 credits):

- ECE 47700 - Digital Systems Senior Project

Option 2 (4 credits):

- ECE 49022 - Electrical Engineering Senior Design Projects

Option 3 (4 credits):

Must be taken in each of 2 consecutive semesters.

- EPCS 41200 - Senior Design Participation In EPICS

Computer Engineering Selectives (16 credits)

Select from the following list so that total credits for Required Major Courses is at least 53.

- ECE 30834 - Fundamentals Of Computer Graphics
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 33700 - ASIC Design Laboratory
- ECE 40400 - Introduction To Computer Security
- ECE 43700 - Computer Design And Prototyping
- ECE 46100 - Software Engineering
- ECE 46900 - Operating Systems Engineering
- ECE 46300 - Introduction To Computer Communication Networks or
- ECE 50863 - Computer Network Systems
- ECE 46800 - Introduction To Compilers And Translation Engineering or
- ECE 57300 - Compilers And Translator Writing Systems
- ECE 40862 - Software For Embedded Systems or
- ECE 56800 - Embedded Systems
- ECE 47300 - Introduction To Artificial Intelligence or
- ECE 57000 - Artificial Intelligence
- Maximum of 6 credits of Computer Engineering "Special Content" courses. (See the Additional Degree Requirements)

Other Department/Program Course Requirements (72 credits)

Students must complete the First-Year Engineering

- (If pursuing Bachelor of Science in Computer Engineering, CS 15900 - Prog Appl for Engineers is required to graduate, but not required to complete the First Year Engineering program.)

General Engineering Requirement (3-6 credits)

C Programming (0 -3 credits)

Required only if CS 15900 not taken as the FYE Science Selective.

- CS 15900 - C Programming

Engineering Breadth Selective - Choose One (3 credits)

- AAE 20300 - Aeromechanics I
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- CE 29700 - Basic Mechanics I (Statics)
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35300 - Physico-Chemical Principles Of Environmental Engineering
- CE 35500 - Engineering Environmental Sustainability
- CHE 20500 - Chemical Engineering Calculations
- EEE 35500 - Engineering Environmental Sustainability
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- ME 41300 - Noise Control
- MSE 23000 - Structure And Properties Of Materials
- NUCL 20000 - Introduction to Nuclear Engineering

Mathematics Requirement - Choose One Option (13-14 credits)

Calculus I and II must be completed as part of the First Year Engineering Requirements.

Option 1 (13 credits)

- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- ECE 36900 - Discrete Mathematics For Computer Engineering

Option 2 (14 credits)

- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- ECE 36900 - Discrete Mathematics For Computer Engineering

Advanced Math Selective - Choose One Course

- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 38500 - Introduction To Logic
- MA 42500 - Elements Of Complex Analysis
- MA 51000 - Vector Calculus
- CS 31400 - Numerical Methods

Science Requirement (4-8 credits)

Physics I and General Chemistry are part of the First Year Engineering Requirements. If an FYE Science Selective other than CS 15900 is selected, it will satisfy the ECE Science Selective requirement below.

- PHYS 27200 - Electric And Magnetic Interactions

ECE Science Selective - Choose One

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior and
- BIOL 13500 - First Year Biology Laboratory
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- CHM 11600 - General Chemistry
- CHM 12400 - General Chemistry For Engineers II
- PHYS 31000 - Intermediate Mechanics
- PHYS 32200 - Intermediate Optics
- PHYS 34200 - Modern Physics
- PHYS 34400 - Modern Physics

ECE General Education Requirement (17-18 credits)

While a comprehensive understanding of science and mathematics is central and foundational to effective engineering practice, real-world engineering problems are both complex and situated within dynamic social, political, and cultural contexts. Therefore, well-rounded engineering curricula must also include courses that encompass the breadth of human experience and culture, both past and present. Such courses may include, but are not limited to, those that explore individual behavior, social and political structures, aesthetic values, modes and dynamics of communication, philosophical and ethical thought, and cognitive processes. These types of courses provide engineering students with a framework for rational inquiry, critical evaluation, and judgment when dealing with issues that are non-quantifiable, ambiguous, and/or controversial. In addition, they offer engineering students the opportunity to develop interests and insights that will deepen their appreciation for the diversity of the world in which they live and work.

Based on these premises, the goals of the ECE General Education Program are to

- Provide the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Support and complement the technical content of the engineering curricula through coursework that emphasizes such skills as written communication, oral communication, information literacy, cultural awareness, leadership, innovation, entrepreneurship, and managing change.

These goals are consistent with the objectives of the College of Engineering's Engineer of 2020 initiative (Engineering Faculty Document 15-06), as well as the objectives of Purdue University's Undergraduate Outcomes-Based Curriculum (University Senate Document 11-7).

To these ends, all B.S. students in Electrical and Computer Engineering are required to complete the ECE General Education Program described below. This program is consistent with the College of Engineering General Education Program (Engineering Faculty Documents 43-13 and 39-14).

Foundational General Education Electives

Students must select from the list of courses approved by the University Curriculum Council (UCC) to satisfy each of the following six Foundational Learning Outcomes of the University Core Requirements - the Science and Quantitative Reasoning Foundational Outcomes are satisfied elsewhere in the BSCMPE curriculum. Some courses may have been approved to meet more than one of the Foundational Learning Outcomes, so fewer than six courses can be used to fulfill this condition. There is no

minimum number of credit hours needed to satisfy this component of the College of Engineering General Education Program. If a course taken to fulfill some other EE/CMPE degree requirement has also been approved as satisfying one or more of these Engineering Foundational Learning Outcomes, then those Engineering Foundational Learning Outcomes need not be satisfied again within the ECE General Education Program. Students must earn a grade of C- or better in courses used to satisfy this component of the ECE General Education Program. The pertinent Foundational Learning Outcomes are defined as follows:

- Written Communication (satisfied as an FYE requirement)
- Oral Communication (satisfied as an FYE requirement)
- Information Literacy
- Human Cultures: Humanities
- Human Cultures: Behavioral/Social Science
- Science, Technology & Society

ECE General Education Electives

Students must take additional approved courses to reach the minimum requirement of 17-18 credit hours (the minimum is 17 credits if a 4 credit hour Written Communication Foundational Core course is taken in the First Year). Other courses, as approved by the ECE Curriculum Committee, may also be selected. See Additional Degree Requirements below to see the list of approved courses.

Advanced Level General Education Requirement

At least 6 of the 17-18 credit hours needed to satisfy the ECE General Education Requirement must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department.

Educational Diversity Requirement

At least 12 credit hours of the 17-18 credit hours needed to satisfy the ECE General Education Requirement must be taken from the College of Liberal Arts, the Krannert School of Management, and/or the Honors College - provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics. The subject areas associated with these colleges and school are:

- College of Liberal Arts: AAS, AD, AMST, ANTH, ARAB, ASL, CHNS, CLCS, CMPL, COM, DANC, ENGL, FR, GER, GREK, HEBR, HIST, IDIS, ITAL, JPNS, JWST, LATN, LC, LING, MARS, MUS, PHIL, POL, PTGS, REL, RUSS, SOC, SPAN, THTR, WGSS
- Krannert School of Management: ECON, ENTR, MGMT
- Honors College: HONR

Complementary Electives (up to 2 credits)

Choose additional coursework to bring total credits to the minimum 125 required for the BSCMPE degree. Students should carefully select these courses to complement their personal interests and their academic record.

All courses, except those specifically excluded by the ECE Curriculum Committee, may be used as Complementary Electives (See Additional Degree Requirements below to view list).

Additional Requirements

- Electrical and Computer Engineering General Education

- Computer Engineering "Special Content" Courses
- Electrical and Computer Engineering No Count List

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00

- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Computer Engineering Program Requirements

Combined with two semesters for FYE above, the following is an example of a 4-year plan that satisfies the BSCMPE degree requirements. It assumes that CS 15900 and a 4 credit hour Written Communication Foundational Core course were taken in the First Year.

Fall 2nd Year

- ECE 29401 - Electrical And Computer Engineering Sophomore Seminar
- ECE 20001 - Electrical Engineering Fundamentals I ♦
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 26400 - Advanced C Programming ♦
- MA 26100 - Multivariate Calculus ♦
- PHYS 27200 - Electric And Magnetic Interactions

16 Credits

Spring 2nd Year

- ECE 20002 - Electrical Engineering Fundamentals II ♦
- ECE 20875 - Python For Data Science
- ECE 27000 - Introduction To Digital System Design ♦
- MA 26600 - Ordinary Differential Equations
- Foundational General Education Elective (Humanities) - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- ECE 30100 - Signals And Systems
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36800 - Data Structures
- ECE 39401 - Professional Communications And Diversity
- Foundational General Education Elective (Behavioral/Social Science) - Credit Hours: 3.00

17 Credits

Spring 3rd Year

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 36900 - Discrete Mathematics For Computer Engineering
- Computer Engineering Selectives - Credit Hours: 7.00
- Foundational General Education Elective (Science, Technology, and Society) - Credit Hours: 3.00

16 Credits

Fall 4th Year

- ECE 47700 - Digital Systems Senior Project
- MA 26500 - Linear Algebra
- ECE General Education Elective - Credit Hours: 3.00
- ECE Complementary Elective - Credit Hour: 1.00
- Computer Engineering Selectives - Credit Hours: 3.00

14 Credits

Spring 4th Year

- ECE 49401 - Professional Communication Capstone
- Computer Engineering Selectives - Credit Hours: 6.00
- Engineering Breadth Selective - Credit Hours: 3.00
- ECE General Education Elective - Credit Hours: 6.00

16 Credits

Notes

- An overall GPA of 2.0 or higher in the Required Major Courses is required.
- All 30000-level and above courses applied towards the Required Major Courses must be completed at the Purdue West Lafayette campus.
- The pass/no pass (P/N) grade option, if available, may be used for courses taken to satisfy the ECE General Education and Complementary Elective Requirements. The P/N grade option cannot be used for courses applied towards the Required Major Courses, General Engineering Requirement, Mathematics Requirement, and the Science Requirement (unless P/N is the only allowed grade option for that course).

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Electrical Engineering, BSEE

About the Program

The Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

Degree Requirements

124 Credits Required

Required Major Courses (52 credits minimum)

An overall 2.00 cumulative GPA or better in these courses is required. Some courses have minimum grade requirements for prerequisites.

Electrical Engineering Core Requirements (27 credits)

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ECE 20875 - Python For Data Science
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 30411 - Electromagnetics I

Required Seminars (3 credits)

- ECE 29401 - Electrical And Computer Engineering Sophomore Seminar
- ECE 39401 - Professional Communications And Diversity
- ECE 49401 - Professional Communication Capstone

Advanced Electrical Engineering Selectives - Choose Three (9-12 credits)

- ECE 30412 - Electromagnetics II
- 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
- ECE 44000 - Transmission Of Information

Senior Design Requirement - Choose One Option (4 credits)

The Electrical Engineering Core Requirements listed above must be completed before taking Senior Design.

Option 1 (4 credits):

- ECE 49022 - Electrical Engineering Senior Design Projects

Option 2 (4 credits):

- ECE 47700 - Digital Systems Senior Project

Option 3 (4 credits):

Must be taken in each of 2 consecutive semesters.

- EPCS 41200 - Senior Design Participation In EPICS

Electrical Engineering Electives (6-9 credits)

- Select from the list of Electrical Engineering Electives ([click here](#)) so that total credits for Required Major Courses is at least 52.
- Must include at least three (3) Advanced-Level Laboratory courses. Advanced-Level Laboratory Courses taken as Advanced EE Selectives (ECE 36200, ECE 43800 and ECE 44000) also contribute to the Advanced-Level Laboratory requirement. No more than two (2) of these labs may be EE "Special Content" courses.
- No more than 6 credit hours of EE "Special Content" courses can be used towards the 52 credit hours of Required Major Courses.

Other Department/Program Course Requirements (72 credits minimum)

Students must complete the First-Year Engineering Requirements (29-30 credits).

(If pursuing Bachelor of Science in Electrical Engineering, CS 15900 - Prog Appl for Engineers is required to graduate, but not required to complete the First Year Engineering program.)

General Engineering Requirement (3-6 credits)

C Programming (0-3 credits)

Required only if CS 15900 not taken as the FYE Science Selective.

- CS 15900 - C Programming

Engineering Breadth Selective - Choose One (3 credits)

- AAE 20300 - Aeromechanics I
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- CE 29700 - Basic Mechanics I (Statics)
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35300 - Physico-Chemical Principles Of Environmental Engineering
- CE 35500 - Engineering Environmental Sustainability
- CHE 20500 - Chemical Engineering Calculations
- EEE 35500 - Engineering Environmental Sustainability
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- ME 41300 - Noise Control
- MSE 23000 - Structure And Properties Of Materials
- NUCL 20000 - Introduction to Nuclear Engineering

Mathematics Requirement - Choose One Option (10-11 credits)

Calculus I and II must be completed as part of the First Year Engineering Requirements.

Option 1 (10 credits)

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

Option 2 (11 credits)

- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations

Advanced Math Selective - Choose One Course

- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 35100 - Elementary Linear Algebra
- MA 38500 - Introduction To Logic
- MA 42500 - Elements Of Complex Analysis
- MA 51000 - Vector Calculus
- CS 31400 - Numerical Methods

Science Requirement (4-8 credits)

Physics I and General Chemistry are part of the First Year Engineering Requirements. If an FYE Science Selective other than CS 15900 is selected, it will satisfy the ECE Science Selective requirement below.

- PHYS 27200 - Electric And Magnetic Interactions
- Science Selective** - Choose One
- BIOL 11000 - Fundamentals Of Biology I
 - BIOL 11100 - Fundamentals Of Biology II
 - BIOL 12100 - Biology I: Diversity, Ecology, And Behavior and
 - BIOL 13500 - First Year Biology Laboratory
 - BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
 - CHM 11600 - General Chemistry
 - CHM 12400 - General Chemistry For Engineers II
 - PHYS 31000 - Intermediate Mechanics
 - PHYS 32200 - Intermediate Optics
 - PHYS 34200 - Modern Physics
 - PHYS 34400 - Modern Physics

ECE General Education Requirement (17-18 credits)

While a comprehensive understanding of science and mathematics is central and foundational to effective engineering practice, real-world engineering problems are both complex and situated within dynamic social, political, and cultural contexts. Therefore, well-rounded engineering curricula must also include courses that encompass the breadth of human experience and culture, both past and present. Such courses may include, but are not limited to, those that explore individual behavior, social and political structures, aesthetic values, modes and dynamics of communication, philosophical and ethical thought, and cognitive processes.

These types of courses provide engineering students with a framework for rational inquiry, critical evaluation, and judgment when dealing with issues that are non-quantifiable, ambiguous, and/or controversial. In addition, they offer engineering students the opportunity to develop interests and insights that will deepen their appreciation for the diversity of the world in which they live and work.

Based on these premises, the goals of the ECE General Education Program are to

- Provide the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Support and complement the technical content of the engineering curricula through coursework that emphasizes such skills as written communication, oral communication, information literacy, cultural awareness, leadership, innovation, entrepreneurship, and managing change.

These goals are consistent with the objectives of the College of Engineering's Engineer of 2020 initiative (Engineering Faculty Document 15-06), as well as the objectives of Purdue University's Undergraduate Outcomes-Based Curriculum (University Senate Document 11-7).

To these ends, all B.S. students in Electrical and Computer Engineering are required to complete the ECE General Education Program described below. This program is consistent with the College of Engineering General Education Program (Engineering Faculty Documents 43-13 and 39-14).

Foundational General Education Electives

Students must select from the list of courses approved by the University Curriculum Council (UCC) to satisfy each of the following six Foundational Learning Outcomes of the University Core Requirements - the Science and Quantitative Reasoning Foundational Outcomes are satisfied elsewhere in the BSCMPE curriculum. Some courses may have been approved to meet more than one of the Foundational Learning Outcomes, so fewer than six courses can be used to fulfill this condition. There is no minimum number of credit hours needed to satisfy this component of the College of Engineering General Education Program. If a course taken to fulfill some other EE/CMPE degree requirement has also been approved as satisfying one or more of these Engineering Foundational Learning Outcomes, then those Engineering Foundational Learning Outcomes need not be satisfied again within the ECE General Education Program. Students must earn a grade of C- or better in courses used to satisfy this component of the ECE General Education Program. The pertinent Foundational Learning Outcomes are defined as follows:

- Written Communication (satisfied as an FYE requirement)
- Oral Communication (satisfied as an FYE requirement)
- Information Literacy (satisfied as an FYE requirement)
- Human Cultures: Humanities
- Human Cultures: Behavioral/Social Science
- Science, Technology & Society

ECE General Education Electives

Students must take additional approved courses to reach the minimum requirement of 17-18 credit hours (the minimum is 17 credits if a 4 credit hour Written Communication Foundational Core course is taken in the First Year). Other courses, as approved by the ECE Curriculum Committee, may also be selected. See Additional Degree Requirements below to see the list of approved courses.

Advanced Level General Education Requirement

At least 6 of the 17-18 credit hours needed to satisfy the ECE General Education Requirement must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department.

Educational Diversity Requirement

At least 12 credit hours of the 17-18 credit hours needed to satisfy the ECE General Education Requirement must be taken from the College of Liberal Arts, the Krannert School of Management, and/or the Honors College - provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics. The subject areas associated with these colleges and school are:

- College of Liberal Arts: AAS, AD, AMST, ANTH, ARAB, ASL, CHNS, CLCS, CMPL, COM, DANC, ENGL, FR, GER, GREK, HEBR, HIST, IDIS, ITAL, JPNS, JWST, LATN, LC, LING, MARS, MUS, PHIL, POL, PTGS, REL, RUSS, SOC, SPAN, THTR, WGSS
- Krannert School of Management: ECON, ENTR, MGMT
- Honors College: HONR

Complimentary Electives (up to 5 credits)

Choose additional coursework to bring total credits to the minimum 124 required for the BSEE degree. Students should carefully select these courses to complement their personal interests and their academic record.

All courses, except those specifically excluded by the ECE Curriculum Committee, may be used as Complementary Electives (click [here](#) to view list).

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Additional Degree Requirements

- Electrical and Computer Engineering General Education
- Electrical Engineering Electives
- Electrical and Computer Engineering No Count List

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ *FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Electrical Engineering Program Requirements

Combined with two semesters for FYE above, the following is an example of a 4-year plan that satisfies the BSEE degree requirements. It assumes that CS 15900 and a 4 credit hour Written Communication Foundational Core course were taken in the First Year.

Fall 2nd Year

- ECE 29401 - Electrical And Computer Engineering Sophomore Seminar
- ECE 20001 - Electrical Engineering Fundamentals I ♦
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 20875 - Python For Data Science
- PHYS 27200 - Electric And Magnetic Interactions
- MA 26100 - Multivariate Calculus ♦

16 Credits

Spring 2nd Year

- ECE 20002 - Electrical Engineering Fundamentals II ♦
- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design
- MA 26600 - Ordinary Differential Equations
- Foundational General Education Elective (Humanities) - Credit Hours: 3.00

17 Credits

Fall 3rd Year

- ECE 30100 - Signals And Systems
- ECE 39401 - Professional Communications And Diversity
- Foundational General Education Elective (Behavioral/Social Science) - Credit Hours: 3.00
- Advanced EE Selective - Credit Hours: 3.00
- EE Elective (Advanced Level Lab) - Credit Hours: 1.00
- ECE Science Selective - Credit Hours: 4.00

15 Credits

Spring 3rd Year

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 30411 - Electromagnetics I
- MA 26500 - Linear Algebra
- Foundational General Education Elective (Science, Technology & Society) - Credit Hours: 3.00
- Advanced EE Selective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- ECE 49022 - Electrical Engineering Senior Design Projects
- ECE General Education Elective - Credit Hours: 6.00
- Complementary Elective - Credit Hours: 3.00
- EE Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- ECE 49401 - Professional Communication Capstone
- Advanced EE Selective with Adv Level Lab - Credit Hours: 8.00

- Engineering Breadth Selective - Credit Hours: 3.00
- ECE General Education Elective - Credit Hours: 3.00

15 Credits

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Electrical and Computer Engineering Minor

Requirements for the Minor (18 credits)

Applying for the minor:

- Before applying for an ECE minor, students must have completed MA 16500, MA 16600, and PHYS 17200 (or their equivalents) with a 'C-' grade or better in each.
- Students must apply for the ECE minor in person in MSEE 140. Call 765-494-3390 for an appointment.
- All requisites for these courses must be met in order to enroll in these courses (non-engineering students may apply for a prerequisite override for ENGR 13100 in ECE 20001). Click the link for each course to see the required requisites. These requisites may include CS 15900, MA 16100/16500, MA 16200/16600, MA 26100, MA 26500, MA 26200/26600, PHYS 17200, and/or PHYS 24100/27200, as necessary.
- Transfer credit may be accepted for up to two of the "Required Courses" (this includes IUPUI, the regional campuses, and study abroad credit).
- A minimum overall GPA of 2.000 is required in ECE courses to qualify for the minor. Approval of the ECE minor may be revoked if the ECE GPA falls below 2.000.
- Enrollment in all ECE courses is subject to space availability. Students requesting space in restricted ECE courses must submit an application and may need to wait until 'Open Enrollment' to register. Electrical Engineering and Computer Engineering majors are given priority.

Required Courses (15 credits)

- ECE 20001 - Electrical Engineering Fundamentals I

- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design

Elective Course - Choose One (3-4 credits)

- ECE 30100 - Signals And Systems
- ECE 30500 - Semiconductor Devices
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 30411 - Electromagnetics I
- ECE 32100 - Electromechanical Motion Devices
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 45300 - Fundamentals Of Nanoelectronics

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Program Information

Computer Engineering "Special Content" Courses

Computer Engineering "Special Content" Courses (6 credits maximum)

- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ECE 27900 - Sophomore Participation In Vertically Integrated Projects In Electrical And Computer Engineering
- ECE 29600 - Electrical And Computer Engineering Projects
- ECE 37900 - Junior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 39600 - Industrial Practice Seminar I
- ECE 47900 - Senior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 49600 - Electrical And Computer Engineering Projects
- EPCS 20100 - Sophomore Participation In EPICS
- EPCS 20200 - Sophomore Participation In EPICS
- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS
- EPCS 40100 - Senior Participation In EPICS
- EPCS 40200 - Senior Participation In EPICS
- ECE 40020 - Sound Reinforcement System Design
- ECE 41200 - Introduction To Engineering Optics

- ECE 41300 - Introduction To Optics Laboratory
- ECE 41400 - Elements Of Electro And Fiber Optics
- ECE 41437 - ASIC Fabrication And Test I
- ECE 41438 - ASIC Fabrication And Test II
- ECE 41500 - Electro- And Fiber Optics Laboratory
- ECE 42300 - Electromechanical Motion Control
- ECE 43200 - Elements Of Power System Engineering
- ECE 43300 - Power Electronics
- ECE 43800 - Digital Signal Processing With Applications
- ECE 44000 - Transmission Of Information
- ECE 44100 - Distributed Parameter Systems
- ECE 45300 - Fundamentals Of Nanoelectronics
- ECE 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 45700 - Electronic Design Laboratory
- ECE 48300 - Digital Control Systems Analysis And Design
- ECE 50616 - Physics And Manufacturing Of Solar Cells
- ECE 50653 - Fundamentals Of Nanoelectronics
- ECE 51012 - Electromechanics
- ECE 51018 - Hybrid Electric Vehicles
- ECE 51100 - Psychophysics
- ECE 51300 - Diffraction, Fourier Optics, And Imaging
- ECE 52600 - Fundamentals Of MEMS And Micro-Integrated Systems
- ECE 52800 - Measurement And Stimulation Of The Nervous System
- ECE 53200 - Computational Methods For Power System Analysis
- ECE 53800 - Digital Signal Processing I
- ECE 54400 - Digital Communications
- ECE 54700 - Introduction To Computer Communication Networks
- ECE 55200 - Introduction To Lasers
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- ECE 55900 - MOS VLSI Design
- ECE 56200 - Introduction To Data Management
- ECE 56300 - Programming Parallel Machines
- ECE 56900 - Introduction To Robotic Systems
- ECE 57700 - Engineering Aspects Of Remote Sensing
- ECE 58000 - Optimization Methods For Systems And Control

Electrical and Computer Engineering General Education

Electrical and Computer Engineering General Education Courses

- Introductory Level Courses (10000- and 20000-level courses without a prerequisite in the same department)
- Advanced Level Courses (courses at the 30000-level or above, or courses with a required prerequisite in the same department)

Introductory Level Courses

- AAS 27100 - Introduction To African American Studies
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 12500 - Introduction To Interior Design
- AD 14600 - Design Drawing I
- AD 22000 - Computers In Art
- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- AD 24200 - Ceramics I
- AD 25100 - History Of Photography I
- AD 25500 - Art Appreciation
- AD 26500 - Relief Printmaking
- AD 26600 - Silkscreen Printmaking
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture
- AGECE 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
- AGECE 21700 - Economics
- AGECE 25000 - Economic Geography Of World Food And Resources
- AMST 20100 - Interpreting America
- ANTH 10000 - Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Introduction To Biological Anthropology And Human Evolution
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 23000 - Gender Across Cultures
- ARAB 10100 - Standard Arabic Level I
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- CHNS 10700 - Chinese For Heritage Students
- CHNS 23000 - Chinese Literature In Translation
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 28500 - Chinese Calligraphy
- CLCS 18100 - Classical World Civilizations
- CLCS 23010 - Survey Of Greek Literature In Translation
- CLCS 23100 - Survey Of Latin Literature
- CLCS 23200 - Classical Roots Of English Words
- CLCS 23300 - Comparative Mythology
- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CLCS 23800 - The Tragic Vision
- CLCS 23900 - The Comic Vision
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D

- CMPL 26700 - World Literature: From 1700 A D To The Present
- COM 10200 - Introduction To Communication Theory
- COM 11400 - Fundamentals Of Speech Communication
- COM 20400 - Critical Perspectives On Communication
- COM 21200 - Approaches To The Study Of Interpersonal Communication
- COM 21700 - Science Writing And Presentation
- COM 22400 - Communicating In The Global Workplace
- COM 25000 - Mass Communication And Society
- COM 25100 - Communication, Information, And Society
- COM 25300 - Introduction To Public Relations
- COM 25600 - Introduction To Advertising
- CSR 20900 - Introduction To Retail Management
- DANC 10100 - Modern Dance Technique
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 14000 - Dance Improvisation
- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 24000 - Dance Composition
- DANC 25000 - Dance Appreciation
- ECON 21000 - Principles Of Economics
- ECON 21700 - Economics
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- ENGL 22700 - Elements Of Linguistics
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23500 - Introduction To Drama
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- ENGL 25800 - Nobel Prize Winners In Literature
- ENGL 26200 - Greek And Roman Classics In Translation
- ENGL 26400 - The Bible As Literature
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D.
- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 27600 - Shakespeare On Film
- ENGL 27900 - The American Short Story In Print And Film
- ENGL 28600 - The Movies
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- FR 10100 - French Level I

- GER 10100 - German Level I
- GER 23000 - German Literature In Translation
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 10500 - Survey Of Global History
- HIST 15100 - American History To 1877
- HIST 15200 - United States Since 1877
- HIST 21000 - The Making Of Modern Africa
- HIST 21100 - The Global Field: World Soccer And Global History
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23800 - History Of Russia From Medieval Times To 1861
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24100 - East Asia In The Modern World
- 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 25000 - United States Relations With The Middle East And North Africa
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)
- ITAL 10100 - Italian Level I
- ITAL 23100 - Dante's Divine Comedy
- ITAL 28000 - Italian Culture And Civilization
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- ITAL 33300 - The Spirit Of Italian Comedy
- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 28000 - Introduction To Modern Japanese Civilization
- LATN 10100 - Latin Level I
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 23100 - Fairytale, Folktale, Fable
- LC 23300 - Love, Sex, And Gender In Western European Literature
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages
- LING 20100 - Introduction To Linguistics
- MARS 12000 - MARS Explorations
- MGMT 20000 - Introductory Accounting
- MUS 25000 - Music Appreciation
- MUS 26100 - Fundamentals Of Music
- PHIL 11000 - The Big Questions: Introduction to Philosophy
- PHIL 11100 - Introduction To Ethics
- PHIL 11400 - Global Moral Issues
- PHIL 12000 - Critical Thinking

- PHIL 20600 - Introduction To Philosophy Of Religion
 - PHIL 21900 - Philosophy And The Meaning Of Life
 - PHIL 22100 - Introduction To Philosophy Of Science
 - PHIL 22500 - Philosophy And Gender
 - PHIL 23000 - Religions Of The East
 - PHIL 23100 - Religions Of The West
 - PHIL 24000 - Social And Political Philosophy
 - PHIL 24200 - Philosophy, Culture, And The African American Experience
 - PHIL 26000 - Philosophy And Law
 - PHIL 27000 - Biomedical Ethics
 - PHIL 27500 - The Philosophy Of Art
 - PHIL 28000 - Ethics And Animals
 - PHIL 29000 - Environmental Ethics
 - POL 10100 - American Government And Politics
 - POL 12000 - Introduction To Public Policy And Public Administration
 - POL 13000 - Introduction To International Relations
 - POL 14100 - Governments Of The World
 - POL 20000 - Introduction To The Study Of Political Science
 - POL 22200 - Women, Politics, And Public Policy
 - POL 22300 - Introduction To Environmental Policy
 - POL 23000 - Introduction To The Study Of Peace
 - POL 23100 - Introduction To United States Foreign Policy
 - POL 23200 - Contemporary Crises In International Relations
 - POL 23500 - International Relations Among Rich And Poor Nations
 - POL 23700 - Modern Weapons And International Relations
 - PSY 10000 - Introduction To The Science And Fields Of Psychology
 - PTGS 10100 - Portuguese Level I
 - REL 20000 - Introduction To The Study Of Religion
 - REL 23000 - Religions Of The East
 - REL 23100 - Religions Of The West
 - RUSS 10100 - Russian Level I
 - RUSS 11100 - Conversation Supplement To Russian Level I
 - SLHS 11500 - Introduction To Communicative Disorders
 - SLHS 22700 - Elements Of Linguistics
 - SOC 10000 - Introductory Sociology
 - SOC 22000 - Social Problems
 - SPAN 10100 - Spanish Level I
 - SPAN 23100 - Cervantes' Don Quixote
 - SPAN 23500 - Spanish American Literature In Translation
 - THTR 13300 - Survey Of Acting
 - THTR 20100 - Theatre Appreciation
 - WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
 - WGSS 28200 - Introduction To LGBT Studies
-
- AD 10600 - Design II
 - AD 11400 - Drawing II
 - AD 20000 - Beginning Painting
 - AD 20500 - Design III

- AD 20600 - Studio In Visual Communication Design
- AD 21300 - Life Drawing I
- AD 21500 - Materials and Processes
- AD 23000 - Interior Design I
- AD 23500 - Materials and Processes II
- AD 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 26200 - Jewelry And Metalwork I
- AD 30000 - Life Drawing II
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31600 - Seminar On Ideas In Industrial Design I: Design And Society
- AD 33000 - Interior Design III
- AD 33200 - Visual Communication Design I
- AD 33300 - Photo Silk Screen
- AD 34200 - Ceramics II
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36200 - Jewelry And Metalwork
- AD 36300 - Documentary Photography
- AD 36500 - Intermediate Painting
- AD 36600 - Visual Communication Design II
- AD 36800 - Etching And Intaglio Printmaking
- AD 36900 - Lithographic Printmaking
- AD 37000 - Woven Textiles
- AD 38000 - Baroque Art
- AD 38100 - Fine Art Photographic Printmaking And Artist's Book
- AD 38200 - A Global History Of Art, Eighteenth-Nineteenth Centuries
- AD 38300 - Modern Art
- AD 38400 - Contemporary Art
- AD 38500 - History Of Interior Design
- AD 39100 - History Of Chinese Art
- AD 39500 - History Of Design
- AD 40000 - Advanced Painting
- AD 40500 - Industrial Design III
- AD 40600 - Industrial Design IV
- AD 42100 - Advanced Studies In Photography And Related Media I
- AD 44200 - Ceramics III
- AD 45400 - Modern Architecture
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 47000 - Advanced Studies In Textiles
- AGECE 22000 - Economics Of Agricultural Markets
- AGECE 29600 - Selected Topics In Agricultural Economics
- AGECE 33100 - Principles Of Selling In Agricultural Business
- AGECE 34000 - International Economic Development
- AGECE 40600 - Natural Resource And Environmental Economics

- AGEC 41000 - Agricultural Policy
- AGEC 41500 - Community And Resource Development
- AGEC 45000 - International Agricultural Trade
- ANTH 30700 - The Development Of Contemporary Anthropological Theory
- ANTH 31200 - The Archaeology Of Ancient Egypt And The Near East
- ANTH 31300 - Archaeology Of North America
- ANTH 32000 - Ancient States And Empires
- ANTH 33500 - Primate Behavior
- ANTH 33600 - Human Variation
- ANTH 34000 - Global Perspectives On Health
- ANTH 34100 - Culture And Personality
- ANTH 36800 - Sociolinguistic Study Of African American English
- ANTH 37300 - Anthropology Of Religion
- ANTH 37700 - Anthropology Of Hunter-Gatherer Societies
- ANTH 37900 - Native American Cultures
- ANTH 39000 - Individual Research In Anthropology
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 40400 - Comparative Social Organization
- ANTH 41400 - Introduction To Language And Culture
- ANTH 42500 - Archaeological Method And Theory
- ANTH 43600 - Human Evolution
- ANTH 46000 - Contemporary Issues In Agriculture
- ARAB 10200 - Standard Arabic Level II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 20700 - Intermediate Chinese For Heritage Students
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- CHNS 30500 - Introduction To Classical Chinese
- CHNS 31300 - Reading And Writing Practice
- CHNS 34100 - Chinese Literature I: Traditional Chinese Literature
- CHNS 34200 - Chinese Literature II: Modern Chinese Literature
- CHNS 40100 - Chinese Level VII
- CHNS 40200 - Chinese Level VIII
- CLCS 33700 - The Ancient Epic
- CLCS 33900 - Literature And The Law
- CLCS 38000 - Alexander The Great and Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38500 - Science, Medicine And Magic In The Ancient West
- CLCS 48300 - Republican Rome
- COM 21000 - Debating Public Issues

- COM 31200 - Rhetoric In The Western World
- COM 31400 - Advanced Presentational Speaking
- COM 31500 - Speech Communication Of Technical Information
- COM 31800 - Principles Of Persuasion
- COM 32000 - Small Group Communication
- COM 32400 - Introduction To Organizational Communication
- COM 32500 - Interviewing: Principles And Practice
- COM 32900 - History Of The Mass Media
- COM 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- COM 36800 - Sociolinguistic Study Of African American English
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37600 - Communication And Gender
- COM 38100 - Gender And Feminist Studies In Communication
- COM 41200 - Theories Of Human Interaction
- COM 41600 - United States Politics And The Media
- COM 43500 - Communication And Emerging Technologies
- COM 49100 - Special Topics In Communication
- CSR 34200 - Personal Finance
- DANC 30100 - Modern Dance Techniques III
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 35500 - Comparative Analysis Of Economic Systems
- ECON 36100 - Antitrust And Regulation
- ECON 36500 - History Of Economic Thought
- ECON 36800 - Economics And Values
- ECON 37000 - International Trade
- ECON 37500 - United States Economic History
- ECON 38000 - Money And Banking
- ECON 42200 - Public Finance And Taxation
- ECON 45600 - Urban Economics
- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 47000 - Transportation Economics
- ECON 47100 - Behavioral Economics
- ECON 51200 - Intermediate Economics II
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Computer-Aided Publishing
- ENGL 32700 - English Language I: History And Development
- ENGL 33100 - Medieval English Literature
- ENGL 33300 - Renaissance English Literature
- ENGL 33500 - Restoration And Eighteenth-Century English Literature
- ENGL 33700 - Nineteenth-Century English Literature

- ENGL 33900 - Twentieth-Century British Literature
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35800 - Black Drama
- ENGL 36000 - Gender And Literature
- ENGL 36500 - Literature And Imperialism
- ENGL 36600 - Postcolonial Literatures
- ENGL 36800 - Sociolinguistic Study Of African American English
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37900 - The Short Story
- ENGL 38100 - The British Novel
- ENGL 38200 - The American Novel
- ENGL 38600 - History Of Film To 1950
- ENGL 38700 - History Of Film Since 1950
- ENGL 40600 - Review Writing
- ENGL 40700 - Intermediate Poetry Writing
- ENGL 40900 - Intermediate Fiction Writing
- ENGL 41100 - Studies In Major Authors
- ENGL 41200 - Studies In Genre
- ENGL 41300 - Studies In Literature And History
- ENGL 41400 - Studies In Literature And Culture
- ENGL 41900 - Multimedia Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- ENGL 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- ENGL 44400 - Milton
- ENGL 46000 - Studies In Women's Literature
- ENGL 46200 - The Bible As Literature: The Old Testament
- ENGL 46300 - The Bible As Literature: The New Testament
- ENGL 46600 - Cultural Encounters
- ENGL 47000 - Theories Of Rhetoric And Composition
- FR 10200 - French Level II
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 21100 - Elementary French Conversation II
- FR 21200 - Intermediate French Conversation
- FR 22400 - Business French I
- FR 24100 - Introduction To The Study Of French Literature
- FR 28000 - Second-Year French: Special Topics
- FR 30100 - French Level V
- FR 30200 - French Level VI
- FR 33000 - French Cinema
- FR 34100 - French Literature I: From The Middle Ages To The Enlightenment
- FR 38000 - Special Topics In French Culture And Civilization
- FR 39400 - Special Topics In French Literature

- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FS 47000 - Wine Appreciation
- GER 10200 - German Level II
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 21100 - Elementary German Conversation II
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Scientific
- GER 22400 - German Level IV: Business German
- GER 24100 - Introduction To The Study Of German Literature
- GER 30100 - German Level V
- GER 30200 - German Level VI
- GER 31200 - Advanced German Conversation
- GER 32300 - German Level VI: Science And Engineering
- GER 33000 - German Cinema
- GER 34100 - German Literature I: From The Middle Ages To The 18th Century
- GER 40100 - German Level VII
- GER 48000 - German Civilization
- HDFS 31100 - Child Development
- HDFS 32500 - Health And Health Care For Children And Families
- HEBR 10200 - Modern Hebrew II
- HEBR 12200 - Biblical Hebrew Level II
- HEBR 20100 - Modern Hebrew Level III
- HEBR 20200 - Modern Hebrew Level IV
- HEBR 22200 - Biblical Hebrew Level IV
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30400 - America In The 1960s
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877
- HIST 31505 - American Beauty
- 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 32300 - German History
- HIST 32400 - Modern France
- 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 33100 - Great Figures In History
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33900 - Traditional China

- HIST 34000 - Modern China
- HIST 34100 - History Of Africa South Of The Sahara
- HIST 34200 - Africa And The West
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35600 - America In Vietnam
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 35900 - Gender In East Asian History
- HIST 36000 - Gender In Middle East History
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37100 - Society, Culture, And Rock And Roll
- HIST 37200 - History Of The American West
- HIST 37500 - Women In America Since 1870
- HIST 37600 - History Of Indiana
- HIST 37700 - History And Culture Of Native America
- HIST 38001 - History Of United States Agriculture
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History
- HIST 38400 - History Of Aviation
- HIST 38700 - History Of The Space Age
- HIST 39100 - History Of Russian Popular Entertainment
- HIST 39400 - Environmental History Of The United States
- HIST 39600 - The Afro-American To 1865
- HIST 39800 - The Afro-American Since 1865
- HIST 40300 - Europe In The Reformation
- HIST 40400 - Kings And Philosophers: Europe 1618-1789
- HIST 40500 - The French Revolution And Napoleon
- HIST 40600 - Rebels And Romantics: Europe 1815-1870
- HIST 40700 - Road To World War I: Europe 1870-1919
- HIST 40800 - Dictatorship And Democracy: Europe 1919-1945
- HIST 41200 - The Cultural History Of The Middle Ages
- HIST 41300 - Modern European Imperialism: Repression and Resistance
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 42700 - History Of Spain And Portugal
- HIST 44100 - Africa In The Twentieth Century
- HIST 46000 - American Colonial History
- HIST 46100 - The Revolutionary Era, 1763 To 1800
- HIST 46700 - The Emergence Of Modern America
- HIST 46800 - Recent American History
- HIST 46900 - Black Civil Rights Movement
- HIST 47100 - History Of The Great Plains Indians
- HIST 47200 - History Of Mexico
- HIST 47300 - History Of The South

- HIST 47500 - Spanish Frontier In North America
- HIST 49400 - Science And Society In American Civilization
- IDIS 49000 - Directed Reading in Interdisciplinary Studies
- ITAL 10200 - Italian Level II
- ITAL 10500 - Accelerated Basic Italian
- ITAL 11200 - Elementary Italian Conversation
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21100 - Italian Conversation III
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 30100 - Italian Level V
- ITAL 33000 - The Italian Cinema
- ITAL 33500 - Italian-American Cinema
- ITAL 34100 - Italian Literature I: From The Middle Ages To The Enlightenment
- ITAL 39300 - Special Topics In Italian Literature Or Cinema
- ITAL 39400 - Special Topics In Italian Literature
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 30100 - Japanese Level V
- JPNS 30200 - Japanese Level VI
- JPNS 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 36100 - Elementary Survey Of Japanese Linguistics
- JPNS 36200 - The Structure Of Japanese II: Advanced Sentence Structure And Applied Linguistics
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48000 - Japanese Civilization
- JPNS 49000 - Special Topics In Japanese Language
- JWST 33000 - Introduction To Jewish Studies
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 34300 - Roman Oratory
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy
- LATN 34600 - Roman Rhetoric
- LATN 44200 - Roman Lyric Poetry
- LATN 44300 - Roman Satire
- LATN 44400 - Roman Philosophers
- LATN 44500 - Roman Encyclopedists
- LATN 44600 - Roman Historians
- LC 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 36800 - Sociolinguistic Study Of African American English
- LC 37100 - Phonetics Of Foreign Languages
- MGMT 20100 - Management Accounting I

- MGMT 30400 - Introduction To Financial Management
- MGMT 45500 - Legal Background For Business I
- MUS 36100 - Music Theory I
- MUS 36200 - Music Theory II
- MUS 36300 - Music Theory III
- MUS 37400 - Contemporary Music
- MUS 37600 - World Music
- MUS 37800 - Jazz History
- MUS 38100 - Music History I: Antiquity To Mozart
- MUS 38200 - Music History II: Beethoven To The Present
- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PHIL 30400 - Nineteenth-Century Philosophy
- PHIL 30600 - Twentieth-Century Philosophy
- PHIL 31900 - Classic And Contemporary Marxism
- PHIL 35000 - Philosophy And Probability
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40600 - Intermediate Philosophy Of Religion
- PHIL 41100 - Modern Ethical Theories
- PHIL 42100 - Philosophy Of Science
- PHIL 42400 - Recent Ethical Theory
- PHIL 42500 - Metaphysics
- PHIL 43000 - Modern Religious Thought
- PHIL 43100 - Contemporary Religious Thought
- PHIL 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- PHIL 49000 - Advanced Topics In Philosophy
- POL 30000 - Introduction To Political Analysis
- POL 31400 - The President And Policy Process
- POL 32300 - Comparative Environmental Policy
- POL 32600 - Black Political Participation In America
- POL 32700 - Global Green Politics
- POL 34500 - West European Democracies In The Post-Industrial Era
- POL 34800 - East Asian Politics
- POL 35000 - Foundations Of Western Political Theory: From The Renaissance To Marx
- POL 35100 - Foundations Of Western Political Theory: From Plato To The Reformation
- POL 35200 - Selected Topics In Political Theory
- POL 35300 - Current Political Ideologies
- POL 36000 - Women And The Law
- POL 37000 - Introduction To Comparative State Politics
- POL 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- POL 41000 - Political Parties And Politics
- POL 41100 - Congress: Structure And Functioning
- POL 41300 - The Human Basis Of Politics
- POL 41500 - US Politics And The Media

- POL 42300 - International Environmental Policy
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43100 - Selected Problems In International Law
- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43400 - United States Foreign Policy, Central America And The Caribbean
- POL 43500 - International Law
- POL 45300 - Marxism And Its Critics
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 23500 - Child Psychology
- PSY 23900 - The Psychology Of Women
- PSY 24400 - Introduction To Human Sexuality
- PSY 25100 - Health Psychology
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 33500 - Stereotyping And Prejudice
- PSY 33600 - Issues In Developmental Psychology
- PSY 33700 - Social Cognition
- PSY 34200 - Introduction To Psychology Of Personality
- PSY 35000 - Abnormal Psychology
- PSY 36100 - Human Development I: Infancy And Childhood
- PSY 36700 - Adult Development And Aging
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 42600 - Language Development
- PSY 42800 - Drugs And Behavior
- PSY 44400 - Human Sexual Behavior
- PSY 46400 - Research Ethics In Psychological Sciences
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PTGS 10200 - Portuguese Level II
- PTGS 10500 - Accelerated Portuguese
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- REL 31800 - The Bible And Its Early Interpreters
- RUSS 10200 - Russian Level II
- RUSS 11200 - Conversation Supplement To Russian Level II
- RUSS 20100 - Russian Level III
- RUSS 20200 - Russian Level IV

- RUSS 21100 - Conversation Supplement To Russian Level III
- RUSS 21200 - Conversation Supplement To Russian Level IV
- RUSS 30100 - Russian Level V
- RUSS 30200 - Russian Level VI
- RUSS 33000 - Russian And East European Cinema
- RUSS 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 36100 - The Structure Of Russian I: Sound System And Sentence Structure
- RUSS 36200 - The Structure Of Russian II: Wordforms And Word Formation
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 48000 - Russian Civilization
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SOC 31000 - Racial And Ethnic Diversity
- SOC 31200 - American Society
- SOC 31600 - Industry And Society
- SOC 32400 - Criminology
- SOC 32600 - Social Conflict And Criminal Justice
- SOC 32700 - Crime, Deviance And Mass Media
- SOC 32800 - Criminal Justice
- SOC 33400 - Urban Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Introduction To The Sociology Of Developing Nations
- SOC 34000 - General Social Psychology
- SOC 34100 - Culture And Personality
- SOC 35000 - Social Psychology Of Marriage
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 37400 - Medical Sociology
- SOC 40200 - Sociological Theory
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42100 - Juvenile Delinquency
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 45000 - Gender Roles In Modern Society
- SOC 45400 - Family Violence
- SPAN 10200 - Spanish Level II
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 21100 - Elementary Spanish Conversation II
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 24100 - Introduction To The Study Of Hispanic Literature

- SPAN 28000 - Second-Year Spanish: Special Topics
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 34100 - Hispanic Literature I: Poetry And Drama
- SPAN 34200 - Hispanic Literature II: Prose
- SPAN 36100 - The Structure Of Spanish I: Phonetics And Phonology
- SPAN 36200 - The Structure Of Spanish II: Morphology, Lexicology, And Syntax
- SPAN 40100 - Spanish Level VII
- SPAN 40200 - Spanish Level VIII
- THTR 21300 - Voice For The Actor
- THTR 32300 - Acting: Movement For The Actor
- THTR 33300 - Acting II: Scene Study
- THTR 33400 - Acting III: Acting For The Camera
- THTR 33600 - Rehearsal And Performance II
- THTR 36200 - Light Design
- THTR 38000 - History Of Theatre I
- THTR 43300 - Acting IV: Acting Shakespeare
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- WGSS 38000 - Gender And Multiculturalism

Electrical and Computer Engineering No Count List

The list of courses below do NOT count for the Electrical Engineering or Computer Engineering majors.

Course that do NOT count:

- Remedial courses, i.e., those with course numbers that start with zero (0)
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry If both CHM 11100 and CHM 11200 are taken, the combination can substitute for CHM 11500
- CS 11000 - Introduction To Computers
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21500 - Physics For Elementary Education
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- PHYS 22200 - Mechanics Laboratory
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 21400 - The Nature Of Physics

Electrical Engineering Electives

EE Electives - Advanced-Level Labs

- ECE 30600 - Electronic Circuits And Systems Laboratory
- ECE 30700 - Electromagnetic Fields And Waves Laboratory
- ECE 30800 - Systems Simulation And Control Laboratory
- ECE 32300 - Electromechanical Motion Devices and Systems Laboratory
- ECE 33700 - ASIC Design Laboratory
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36400 - Software Engineering Tools Laboratory
- ECE 37900 - Junior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 39600 - Industrial Practice Seminar I
- ECE 41300 - Introduction To Optics Laboratory
- ECE 41437 - ASIC Fabrication And Test I
- ECE 41438 - ASIC Fabrication And Test II
- ECE 41500 - Electro- And Fiber Optics Laboratory
- ECE 43800 - Digital Signal Processing With Applications
- ECE 44000 - Transmission Of Information
- ECE 45700 - Electronic Design Laboratory
- ECE 46800 - Introduction To Compilers And Translation Engineering
- ECE 46900 - Operating Systems Engineering
- ECE 47900 - Senior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- ECE 43700 - Computer Design And Prototyping
- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS
- EPCS 40100 - Senior Participation In EPICS
- ME 45500 - Vehicle Design And Fabrication

EE Electives - "Special Content" Courses

- ECE 27900 - Sophomore Participation In Vertically Integrated Projects In Electrical And Computer Engineering
- ECE 29600 - Electrical And Computer Engineering Projects
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition

- ECE 37900 - Junior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 39600 - Industrial Practice Seminar I
- ECE 47900 - Senior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 51100 - Psychophysics
- EPCS 20100 - Sophomore Participation In EPICS
- EPCS 20200 - Sophomore Participation In EPICS
- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS
- EPCS 40100 - Senior Participation In EPICS
- EPCS 40200 - Senior Participation In EPICS
- ME 45500 - Vehicle Design And Fabrication

EE Elective Courses

- ECE 26400 - Advanced C Programming
- ECE 30500 - Semiconductor Devices
- ECE 30834 - Fundamentals Of Computer Graphics
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 32100 - Electromechanical Motion Devices
- ECE 38200 - Feedback System Analysis And Design
- ECE 40020 - Sound Reinforcement System Design
- ECE 40400 - Introduction To Computer Security
- ECE 40862 - Software For Embedded Systems
- ECE 41200 - Introduction To Engineering Optics
- ECE 41400 - Elements Of Electro And Fiber Optics
- ECE 42300 - Electromechanical Motion Control
- ECE 43200 - Elements Of Power System Engineering
- ECE 43300 - Power Electronics
- ECE 43500 - Object-Oriented Design Using C++ And Java
- ECE 43700 - Computer Design And Prototyping
- ECE 44100 - Distributed Parameter Systems
- ECE 45300 - Fundamentals Of Nanoelectronics
- ECE 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 46100 - Software Engineering
- ECE 46300 - Introduction To Computer Communication Networks
- ECE 47300 - Introduction To Artificial Intelligence
- ECE 50616 - Physics And Manufacturing Of Solar Cells
- ECE 50653 - Fundamentals Of Nanoelectronics
- ECE 50863 - Computer Network Systems
- ECE 51012 - Electromechanics
- ECE 51018 - Hybrid Electric Vehicles
- ECE 51300 - Diffraction, Fourier Optics, And Imaging
- ECE 52600 - Fundamentals Of MEMS And Micro-Integrated Systems

- ECE 52800 - Measurement And Stimulation Of The Nervous System
- ECE 53200 - Computational Methods For Power System Analysis
- ECE 53800 - Digital Signal Processing I
- ECE 54400 - Digital Communications
- ECE 54700 - Introduction To Computer Communication Networks
- ECE 55200 - Introduction To Lasers
- ECE 55900 - MOS VLSI Design
- ECE 56200 - Introduction To Data Management
- ECE 56300 - Programming Parallel Machines
- ECE 56500 - Computer Architecture
- ECE 56800 - Embedded Systems
- ECE 56900 - Introduction To Robotic Systems
- ECE 57000 - Artificial Intelligence
- ECE 57300 - Compilers And Translator Writing Systems
- ECE 57700 - Engineering Aspects Of Remote Sensing
- ECE 58000 - Optimization Methods For Systems And Control

School of Engineering Education

School of Engineering Education

Within the School of Engineering Education, two distinct degree options are offered. Interdisciplinary Engineering Studies (IDES) and Multidisciplinary Engineering (MDE) are each unique pathways that serve 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 (BS). Alternatively, MDE confers a bachelor of science in engineering (BSE). Further details of each program follow below.

The **Multidisciplinary Engineering** (MDE) mission, goals, and objectives are designed to prepare graduates to practice engineering. Typically, a plan of study is developed around a focused concentration. Students may develop their own individual plan of study or select one of these established concentrations:

- Acoustical Engineering
- Engineering Management
- General Engineering
- Visual Design Engineering
- Lighting Engineering
- Nano-Engineering
- Humanitarian Engineering
- Theatre Engineering (Limited Enrollment)
- Educational Engineering (not a teaching certified program)

Interdisciplinary Engineering Studies (IDES) is for students who want an engineering education but do not plan to practice engineering. Students are often looking ahead to attending a professional school, such as Medical School, or looking for some engineering coursework and other broad educational exposure. Choose from these concentrations:

- Engineering Science Studies
- Pre-Professional Engineering Studies (In preparation for a professional school: Pre-Med; Pre-Law; Pre-Vet; etc)

Students must complete the requirements of the First-Year Engineering Program to be accepted into either IDES or MDE. These programs offer students the opportunity to advance to graduate school or pursue a career in industry.

Features of these undergraduate programs include:

- Flexible plan of study
- Limited enrollment
- Student planning is required in collaboration with intensive advisor counseling

Faculty

Students interested in pursuing undergraduate research opportunities in the School of Engineering Education are encouraged to contact faculty who conduct research in their areas of interest. A comprehensive list of engineering faculty is provided here.

Contact Information

Questions can be directed to the following offices.

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

Advising: ide@ecn.purdue.edu

Baccalaureate

Interdisciplinary Engineering Studies, BS

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 meet educational goals that require working at the interface between engineering and other disciplines.

School of Engineering Education

Degree Requirements

120 Credits Required

Interdisciplinary Engineering Studies Major Courses

Required Major Courses (30-33 credits)

At least 15 credits are 30000+

Economics Selective⁴

- IE 34300 - Engineering Economics
OR
- ECON 25100 - Microeconomics and
- ECON 25200 - Macroeconomics

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦ - (Must be taken at Purdue West Lafayette)
Engineering Statistics
Engineering Design Elective
- IDE 36000 - Multidisciplinary Engineering Statistics Or approved equivalent (IE 23000, IE 33000, ECE 30200, CHE 32000, STAT 35000, STAT 51100) . If non-engineering statistics course is taken, it counts as math and basic science (MBSE); if engineering course is taken, it counts towards engineering credits.
- Engineering Design (30000+ level) - Credit Hours: 3.00 Must be approved by ENE Department (e.g. ABE 33000, AAE 25100, CE 45600, IE 38600 etc.)
- Engineering Elective - Engineering courses only (*To meet students educational objectives*)
- *Additional engineering credits (6cr.) are required if non-engineering course options are taken to satisfy a requirement (i.e. Economics* & Statistics* selective).*

Other Departmental /Program Course Requirements (typically 58 credits)

[Click here for First-Year Engineering Requirements](#)

*Alternative FYE courses can be substituted (i.e. ENGR 14100/14200, etc.)

- MA 26100 - Multivariate Calculus (satisfies math (MBSE) requirement)
and
- MA 26200 - Linear Algebra And Differential Equations (satisfies math (MBSE) requirement)
or
- MA 26500 - Linear Algebra (satisfies math (MBSE) requirement) and
- MA 26600 - Ordinary Differential Equations (satisfies math (MBSE) requirement)

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

General Education (18 credits)

- General Education I - Credit Hours: 3.00 (satisfies Humanities for core)
- General Education II - Credit Hours: 3.00 (satisfies Behavioral Social Science for core)

- General Education III - Credit Hours: 3.00 (satisfies Science, Technology and Society for core)
- General Education IV - Credit Hours: 3.00
- General Education V - Credit Hours: 3.00
- General Education VI - Credit Hours: 3.00

Area Electives (29-32 credits typically)

Chosen to satisfy student's educational objectives, and meet minimum plan of study total (120).

Engineering Science Studies concentration specific course

Very highly recommended:

- CGT 11000 - Technical Graphics Communications or
- CGT 16300 - Graphical Communication And Spatial Analysis or
- CGT 16400 - Graphics For Civil Engineering And Construction

Optional Concentrations

- Engineering Science Studies Concentration for Interdisciplinary Engineering
- Pre-Medical Engineering Studies Concentration for Interdisciplinary Engineering

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ *FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Interdisciplinary Engineering Studies Program Requirements

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics or
- Science Selective - Credit Hours: 3.00 †
- Area Elective 1 †¹ - Credit Hours: 3.00
- Area Elective 2 †¹ - Credit Hours: 3.00
- Engineering 20000+level Elective^{†2} - Credit Hours: 3.00

16 Credits

Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations
- Engineering 20000+level^{†2} - Credit Hours: 2.00
- Engineering 20000+level Elective^{†2}- Credit Hours: 3.00
- Area Elective 3^{†1} - Credit Hours: 3.00

- Area Elective 4^{†1} - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- General Education 1 (Foundational Outcome H) - Credit Hours: 3.00
- Engineering 20000+level Elective^{†2} - Credit Hours: 3.00
- Area Elective 5^{†1} - Credit Hours: 3.00
- Area Elective 6^{†1} - Credit Hours: 3.00
- Area Elective 7^{†1} - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- IDE 36000 - Multidisciplinary Engineering Statistics ^{†2}
- Engineering 30000+level Elective^{†2} - Credit Hours: 3.00
- General Education 2 (Foundational Outcome BSS) - Credit Hours: 3.00
- General Education 3 (Foundational Outcome STS) - Credit Hours: 3.00
- Area Elective 8^{†1} - Credit Hours: 3.00

15 Credits

Fall 4th Year

- IE 34300 - Engineering Economics - Economics Elective [†]
- Engineering Design 30000+level^{†5} - Credit Hours: 3.00
- General Education 4^{†3} (30000 level or non-intro) - Credit Hours: 3.00
- General Education 5^{†3} - Credit Hours: 2.00
- Area Elective 9^{†1} - Credit Hours: 3.00

14 Credits

Spring 4th Year

- Engineering 30000+level Elective^{†2} - Credit Hours: 3.00
- Engineering 30000+level Elective ^{†2} - Credit Hours: 3.00
- General Education 6^{†3} (30000 level or non-intro) - Credit Hours: 3.00
- Area Elective 10^{†1} - Credit Hours: 3.00
- MBSE Elective - Credit Hours: 3.00

15 Credits

Notes

MBSE - Math, Basic Science, & Engineering - 44 credits minimum from excluding FYE courses (Engineering, CS, Mathematics, or science courses as needed)

**Satisfies a Non-departmental Major Course Requirement.

†Multiple options are available - the most common is listed. †1 statics options, †2thermodynamics 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.

- †Multiple options are available: common option listed. †1 Area electives are chosen with aid of advisor to advance the student's educational objectives. Area classes for this plan of study are used to complete the requirements to take the MCATS and attend medical school. Courses to be completed include but are not limited to: 2 semesters General Biology with labs (minimum - should take more); 2 semesters General Chemistry with labs; 2 semesters Organic Chemistry with labs; 2 semesters Physics with labs; 2 semesters English Composition; 1 semester Biochemistry (no lab required; (* IU MD and Marian DO programs will require as of fall 2015); Anatomy and Physiology (not required but highly recommended for MCAT); 1 semester General Psychology (*IU MD and Marian DO programs will require as of fall 2015); 1 semester sociology (* IU MD and Marian DO programs will require as of fall 2015); other recommended courses Statistics. Generally, a grade below a C is not acceptable for a prerequisite course.
- †2 engineering electives are chosen with aid of advisor to advance the student's educational objectives. †3General Education courses can be taken from CLA, Krannert or Honors - consult advisor. †4 statistics selective could be approved equivalent (IE 23000/33000 /ECE 30200 /CHE 32000 /STAT 35000 /STAT 51100 - (if non engineering statistics selective chosen fulfills MBSE, but would require another 3 credit engineering course to be taken); †5 design selective - consult advisor for course selection. Engineering courses (30 credits of 20000+ level engineering courses, of which at least 15 credits are 30000+; MAX credits allowed in any one engineering discipline is 24.)
- 120 semester credits required for Bachelor of Science degree.
- Graduation Index of 2.0 or higher and a min. GPA of 2.0 in Engineering courses at 20000+ level included in the POS. All other Purdue University graduation requirements including "There must be 32 credits of 30000+ level for graduation" must be satisfied.
- *THE PLAN OF STUDY FROM 3RD SEMESTER ONWARDS SHOULD BE FILLED BY STUDENT AFTER CONSULTATION WITH ACADEMIC ADVISER.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Multidisciplinary Engineering, BSE (General Engr Concentration)

About the Program

The Multidisciplinary Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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 choose from an established plan of study, or develop an individual plan of study to meet educational goals that can require bringing together multiple engineering disciplines, or non-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, to name a few.

School of Engineering Education

Degree Requirements

120 Credits Required

Multidisciplinary Engineering Major Courses (45 credits)

(Included 18+ credits of 30000 level; 6 credits 40000 level - A maximum of 24 credits allowed in any one engineering discipline)

Required Engineering Core (18-26 credits)

- ECE 20100 - Linear Circuit Analysis I ♦

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦ or
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦

- 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

- ME 20000 - Thermodynamics I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦

- IE 34300 - Engineering Economics or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making

- 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 ♦ - Credit Hours: 3.00-4.00

Engineering Selectives (8 credits)

Engineering Design Examples (3 credits)

(Must be approved by Department of Engineering Education)

- ABE 33000 - Design Of Machine Components
- AAE 25100 - Introduction To Aerospace Design
- IE 38600 - Work Analysis And Design I

Hands-on Lab Examples (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

Materials/Strength of Materials Examples (3 credits)

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

Engineering Area Elective Courses (20-21 credits)

Beginning Course (3-4 credits)

- 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

Core Course (3 credits)

- ABE 43500 - Hydraulic Control Systems For Mobile Equipment

- AAE 33400 - Aerodynamics
- BME 30400 - Biomedical Transport Fundamentals
- CE 27000 - Introductory Structural Mechanics

Advanced Course (3 credits)

- 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

Engineering Electives (3-10 credits)

- Engineering courses only (to meet educational objectives)

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

[Click here for First-Year Engineering Requirements](#)

- 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)

Sophomore Science Selective (3 credits)

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

Statistics Selective (3 credits)

Counts as either engineering 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
- STAT 35000 - Introduction To Statistics
- STAT 51100 - Statistical Methods

Hands-on Lab (1 credit)

Not computer lab

- CHM 11600 - General Chemistry
- THTR (Sound Studio)
- AD
- Engineering Lab

Area Electives (1-12 credits)

Required area course(s) for General Engineering (Chosen to satisfy student's educational objectives):

- CGT 11000 - Technical Graphics Communications or
- CGT 16300 - Graphical Communication And Spatial Analysis or
- CGT 16400 - Graphics For Civil Engineering And Construction

General Education (18 credits)

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Optional Concentrations

- Acoustical Engineering Concentration for Multidisciplinary Engineering
- Educational Engineering Concentration for Multidisciplinary Engineering

- Engineering Management Concentration in Multidisciplinary Engineering
- Humanitarian Engineering Concentration for Multidisciplinary Engineering
- Lighting Engineering Concentration in Multidisciplinary Engineering
- Nano Engineering Concentration for Multidisciplinary Engineering
- Theatre Engineering Concentration in Multidisciplinary Engineering
- Visual Design Engineering Concentration for Multidisciplinary Engineering

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ *FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Multidisciplinary Engineering Program Requirements

Fall 2nd Year

- MA 26100 - Multivariate Calculus ♦
- ME 27000 - Basic Mechanics I ¹

- ME 20000 - Thermodynamics I ² ♦ or
- Area Elective³ - Credit Hours: 3.00
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- PHYS 24100 - Electricity And Optics or
- Science Selective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations
- 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 Elective³ - Credit Hours: 2.00

15 Credits

Fall 3rd Year

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

14 Credits

Spring 3rd Year

- IDE 36000 - Multidisciplinary Engineering Statistics ⁸
- Engineering Class⁵ (follow-up) - Credit Hours: 1.00
- Engineering Class⁹ (follow-up) - Credit Hours: 2.00
- General Education 4 (30000 level or non-intro) - Credit Hours: 3.00
- General Education 2 (Core Outcome BSS) - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- Engineering Class 40000+ level⁵ (advanced) - Credit Hours: 3.00
- General Education 3 (Core Outcome STS) - Credit Hours: 3.00
- General Education 5 - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- IDE 48500 - Multidisciplinary Engineering Design Project ♦¹⁰
- AREA MBS or other - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Class 30000+ level - Credit Hours: 3.00
- General Education 6 (30000+ level or non-intro) - Credit Hours: 3.00

15 Credits

Notes

- * Can substitute with approved alternative FYE courses: i.e. ENGR 141/142, etc.
- ** Satisfies a non-departmental Major Course Requirement.
- 2.0 Graduation GPA required for Bachelor of Science in Engineering Degree.
- Consultation required with Academic Advisor to complete Third Semester to End of coursework.

Multiple Options are available - the most common is listed:

- +1 statics options
- +2 thermodynamics options
- +3 area electives are chosen with aid of advisor to advance the student's educational objectives
- +4 dynamics options
- +5 engineering selectives are chosen with aid of advisor to advance the student's educational objectives
- +6 fluids option
- +7 materials options
- +8 statistics options
- +9 design selective
- +10 Capstone design selective

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be

proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Acoustical Engineering Concentration for Multidisciplinary Engineering

Acoustical Engineering (30 credits)

Sound System Option (30 credits)

Area Electives (8 credits)

Area classes are chosen based on a student's educational objectives. These may be chosen to complete minors. Consult with academic advisor.

Theatre Courses (7 credits)

THTR courses are required for this concentration.

- THTR 16300 - Introduction To Sound Design And Technology
- THTR 25300 - Survey Of Audio Production
- THTR 26300 - Introduction To Sound Studios
- THTR 35300 - Theater Audio Techniques I
- THTR 36300 - Sound Design
- THTR 36800 - Theatre Production II
- THTR 55300 - Theatre Audio Technology II
- THTR 56300 - Advanced Sound Design
- THTR 56900 - Special Problems In Audio Production
- THTR 59700 - Production And Design Seminar
- DANC 36800 - Dance Sound Design

Engineering Electives (3 credits)

Engineering electives are chosen based on a student's educational objectives. Consider using towards ECE minor. Consult with academic advisor.

Engineering Selective (9 credits)

- ECE 20200 - Linear Circuit Analysis II
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 30500 - Semiconductor Devices
- ECE 32100 - Electromechanical Motion Devices
- ECE 36200 - Microprocessor Systems And Interfacing

Design Elective (3 credits)

- ECE 40020 - Sound Reinforcement System Design or
- ME 41300 - Noise Control

Vibrational Option (30 credits)

Area Electives (11 credits)

Area classes are chosen based on a student's educational objectives. These may be chosen to complete minors. Consult with academic advisor.

Theatre Courses (4 credits)

THTR courses are required for this concentration.

- THTR 16300 - Introduction To Sound Design And Technology
- THTR 25300 - Survey Of Audio Production
- THTR 26300 - Introduction To Sound Studios
- THTR 35300 - Theater Audio Techniques I
- THTR 36300 - Sound Design
- THTR 36800 - Theatre Production II
- THTR 55300 - Theatre Audio Technology II
- THTR 56300 - Advanced Sound Design
- THTR 56900 - Special Problems In Audio Production
- THTR 59700 - Production And Design Seminar
- DANC 36800 - Dance Sound Design

Engineering Electives (9 credits)

Engineering electives are chosen based on a student's educational objectives. Consult with academic advisor.

Engineering Selective (3 credits)

- ME 51300 - Engineering Acoustics or
- ME 41300 - Noise Control or
- CE 31100 - Architectural Engineering

Design Elective (3 credits)

- ECE 40020 - Sound Reinforcement System Design or
- ME 41300 - Noise Control

Educational Engineering Concentration for Multidisciplinary Engineering

Educational Engineering (33 credits)

Required Courses

- EDST 20000 - History And Philosophy Of Education
- EDPS 23500 - Learning And Motivation
(Counts toward 6 credits of 24 credits General Education required in all plans.)

Engineering Selective

- (6 credits) Options include:
- ENE 49800 - Undergraduate Research In Engineering Education
- ENE 50200 - History And Philosophy Of Engineering Education
- ENE 59000 - Special Problems In Engineering Education
- ENE 59500 - Special Topics In Engineering Education

Engineering Elective

- Engineering electives are chosen based on a student's educational objectives. Consider sustainability and environmental engineering courses. Consult with academic advisor. (6 credits)
- Design elective EPCS 30000+ is highly recommended. Consult academic advisor for other options. (3 credits)
- EPCS 30100 - Junior Participation In EPICS (Design course)
- EPCS 30200 - Junior Participation In EPICS (Design course)

Area Selectives

- Area classes are chosen based on a student's educational objectives. These may be chosen to complete minors. Consult with academic advisor. (6 credits)

Education Selective

- Area classes include: (Note specific courses related to concentration.) (9 credits)
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 28500 - Multiculturalism And Education
- EDPS 10500 - Academic And Career Planning
- EDPS 26500 - The Inclusive Classroom
- EDPS 31500 - Collaborative Leadership: Interpersonal Skills
- EDPS 31600 - Collaborative Leadership: Cross-Cultural Settings

- EDST 24800 - Contemporary Issues In American Schools
- HDF5 21000 - Introduction To Human Development

Education Methods Selective

- Area classes include: (3 credits) (Note specific courses related to concentration.)
- EDCI 42100 - The Teaching Of Biology In Secondary Schools
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 42500 - Teaching Of Mathematics In Secondary Schools
- EDCI 42600 - Teaching Mathematics In The Middle And Junior High School
- EDCI 42800 - Teaching Science In The Middle And Junior High School

Engineering Management Concentration in Multidisciplinary Engineering

Engineering Management Concentration (30 credits)

Area Selectives

- Area classes are chosen based on a student's educational objectives. This plan of study requires a minor in Management or a minor in Organizational Leadership or a (certificate in Entrepreneurship +6 credits in MGMT, OLS or ENTR {other than ENTR 20000 or 31000}) (15 Credits)

Engineering Electives

- Engineering electives are chosen based on a student's educational objectives. Consult with academic advisor. (12 credits)

Design Elective

- Design Elective option must be approved, consult with academic advisor. (3 credits)
- Some examples: EPCS 30000+level, and the following:
- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 27000 - Introduction To Digital System Design
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship (CODO from Mechanical Engineering only.)
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

Engineering Science Studies Concentration for Interdisciplinary Engineering

Engineering Elective (20-26 Credits)

- AAE 30000-59999
- ABE 20000-59999
- BME 20000-59999
- CE 20000-59999
- CEM 20000-59999
- CHE 20000-59999
- ECE 20000-59999
- EEE 20000-59999
- ENE 20000-59999
- ENGR 31000 Engineering In Global Context
- IDE 20000-59999
- IE 20000-59999
- ME 20000-59999
- MSE 20000-59999
- NUCL 20000-59999

Elective (30 credits)

- AAE 20000-59999
- ABE 20000-59999
- AGR 20000-59999
- BME 20000-59999
- CE 20000-59999
- CEM 20000-59999
- CHE 20000-59999
- CHM 11500-59999
- ECE 20000-59999
- ECET 22100-59999
- EEE 20000-59999
- ENE 20000-59999
- ENGL 20000-59999
- ENGR 29600 Experimental Courses
- ENGR 31000 Engineering In Global Context
- FNR 19900-59999
- IDE 20000-59999
- IE 20000-59999
- LA 10111-59999
- NUCL 20000-59999
- MA 30000-59999
- ME 20000-59999
- MSE 20000-59999

- AAS
- AD
- AFT
- AGECE
- AGRY
- AMST
- ANSC
- ANTH
- ARAB
- ASAM
- ASTR
- BAND
- BCHM
- BCM
- BIOL
- BMS
- BTNY
- CDIS
- CGT
- CHNS
- CLCS
- CLPH
- CMPL
- CNIT
- CPB
- CS
- CSR
- DANC
- EAPS
- ECON
- EDCI
- EDST
- ENTM
- ENTR
- FR
- FS
- FVS
- GER
- GREK
- HDFS
- HEBR
- HHS
- HIST
- HK
- HONR
- HORT
- HSCI

- HTM
- IDIS
- IPPH
- IT
- ITAL
- JPNS
- JWST
- LATN
- LC
- LING
- MARS
- MCMP
- MET
- MFET
- MGMT
- MSL
- MUS
- NRES
- NS
- NUPH
- NUR
- NUTR
- OBHR
- OLS
- PES
- PHAD
- PHIL
- PHPR
- PHRM
- PHYS
- POL
- PSY
- PTGS
- REL
- RUSS
- SCLA
- SFS
- SLHS
- SOC
- SPAN
- STAT
- SYS
- TECH
- THTR
- TLI
- VCS
- VM

- WGSS
- YDAE

Humanitarian Engineering Concentration for Multidisciplinary Engineering

Humanitarian Engineering Concentration (30 credits)

Required Courses

- ENGR 31000 - Engineering In Global Context
- ENGR 50000 - Global Design Team V
- EPCS 30100 - Junior Participation In EPICS (Design course)
- EPCS 30200 - Junior Participation In EPICS (Design course)

Area Selectives

- Area classes are chosen based on a student's educational objectives. These courses should be focused toward humanitarian interests. The objective of the Area coursework (plus the general education courses) is to either refine or broaden your understanding of languages, anthropology, cultures, geo political policy, religions, health and wellness, and/or aspects of military or medial aid. Strongly consider using area classes to complete the minor/certificate such as Global Engineering Studies minor, Global Studies minor, and Medical Humanities certificate. Additional engineering courses can also be used in the area. (15 credits)

Engineering Selective

- Choose 6 credits of engineering selective courses from the following: (Note specific course related to concentration.)

Agriculture

- ABE 30500 - Physical Properties Of Biological Materials
- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability

Energy

- ME 41500 - Energy Systems Engineering
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy

Habitat

- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities or

- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- ENE 55300 - Introduction To Globalization And Engineering
- ENE 55400 - Globalization And Engineering

Health

- IE 49000 - Special Topics In Industrial Engineering
- (example: Gnd Challenges and Accessibility or Ergonomics and Healthcare)
- IE 59000 - Topics In Industrial Engineering
- (example: Human Factors & Medical Devices)
- ME 59700 - Advanced Mechanical Engineering Projects I
- (example: Healthcare Product Design)

Sanitation

- ABE 30500 - Physical Properties Of Biological Materials
- CE 35000 - Introduction To Environmental And Ecological Engineering or
- EEE 35000 - Introduction To Environmental And Ecological Engineering

Water

- ABE 32500 - Soil And Water Resource Engineering
- ABE 52500 - Irrigation Management And Design
- CE 34100 - Hydraulics, Hydrology, And Drainage

Lighting Engineering Concentration in Multidisciplinary Engineering

Lighting Engineering Concentration (30 credits)

Required Courses

- ECE 20200 - Linear Circuit Analysis II
- ECE 25500 - Introduction To Electronic Analysis And Design (Design course)
- THTR 16200 - Introduction To Light Design And Technology (Thtr course counts as 2 credits of Area coursework; Total of 15 Area credits for concentration.)

Area Selectives

- Choose from the following: Consult with academic advisor for other courses. (13 credits).
- THTR 15001 - Introduction To Drafting
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 36200 - Light Design

- THTR 36800 - Theatre Production II
- THTR 56200 - Advanced Light Design
- THTR 56800 - Advanced Problems In Design
- CE 31100 - Architectural Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 51300 - Lighting In Buildings
- Consult with academic advisor for other course options.

Engineering Selectives

- Choose an engineering class from the following: (3 credits)
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 31100 - Electric And Magnetic Fields
- ECE 41200 - Introduction To Engineering Optics
- ECE 41400 - Elements Of Electro And Fiber Optics

Engineering Elective

- Engineering electives are chosen based on a student's educational objectives. Consult with academic advisor. (6 credits)

Nano Engineering Concentration for Multidisciplinary Engineering

Nano Engineering (30 Credits)

Area Selectives (15 Credits)

Note specific course related to concentration.

Physics Sequence:

- PHYS 31000 - Intermediate Mechanics
 - PHYS 34200 - Modern Physics
 - PHYS 36000 - Quantum Mechanics
- OR

Chemistry Sequence:

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory

- Additional Area Requirements - Credit Hours: 5.00-7.00 (*Must be taken in STEM and approved. Consult with academic advisor.*)

Engineering Selectives

Engineering Selective

Electrical Option

(12 credits)

- ECE 20200 - Linear Circuit Analysis II
- ECE 31100 - Electric And Magnetic Fields

- Take two of the following:
- ECE 27000 - Introduction To Digital System Design
- ECE 30500 - Semiconductor Devices
ECE research

Materials Option

- (12 credits) Take 4 of the following:
- MSE 23500 - Materials Properties Laboratory
- MSE 26000 - Thermodynamics Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 33000 - Processing And Properties Of Materials
- MSE 33500 - Materials Characterization Laboratory
- MSE 36700 - Materials Processing Laboratory
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials

Design Elective

Electrical Option

- (3 credits) (Note: course related to specific concentration.)
- ECE 25500 - Introduction To Electronic Analysis And Design

Materials Option

- Design elective option must be approved. Some examples are: (3 credits) EPCS 30000+ level, plus the following:
- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 27000 - Introduction To Digital System Design
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
(Approved for CODO from Mechanical Engineering only.)
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

Pre-Medical Engineering Studies Concentration for Interdisciplinary Engineering

Career Description

- Students who take the Interdisciplinary Engineering Studies pathway (BS), frequently are interested in pursuing medical school programs after their undergraduate degree.
- Two types of programs-allopathic medicine (M.D.) and osteopathic medicine (D.O.) are available to become a physician. The credentials, training, jobs, and available specialties are the same for both.
- Allopathic and osteopathic physicians use a biological approach to healing. Physicians diagnose, treat, and work to prevent human illness and injury.
- They perform examinations, analyze medical histories, order and interpret diagnostic tests and develop treatment plans.
- Allopathic and osteopathic physicians are very similar in their approach to working with patients and the differences between them are more historical than current practice.
- The osteopathic approach is patient oriented and uses a somewhat more holistic approach than allopathic medicine. Osteopathic medicine also incorporates a treatment modality-Osteopathic Manipulative Medicine (OMM)-which is a form of musculo-skeletal manipulation that is used both for diagnosis and treatment.
- MDs and DOs practice in all the same specialties. Work is in progress to combine the two types of residencies.
- Purdue University is one of the locations for the Indiana University School of Medicine. Marian University houses the osteopathic medical school in the state.

Developing an IDES degree pathway to become a physician

- Students should complete a bachelor's degree in a field of their choice (IDES) along with necessary prerequisite courses that prepare them for medical schools.
- Medical school is a four year program followed by on the job training (residency) which will last 3-8 years. Subspecialization is accomplished through fellowships which can last several more years.
- MDs and DOs are licensed by the state after passing an examination.
- Physicians must also pass board exams for certification in specialty areas.

Preparation

- Observe physicians to make sure this is the right field for you and that you truly understand what it means to be an allopathic or osteopathic physician.
- Medical schools will also want to see you can handle a heavy course load while being active in extracurricular activities, providing community service, and gaining medical experience.
- While each medical school determines the courses it will require, the required courses are relatively standard and similar to the list below.
- All required courses must have a minimum grade of C.
- Other than Biochemistry, which is one semester and does not require a lab, the science requirements are typically 8-10 credit hours with two of those hours being lab.

Area Electives (29-32 credits)

The following are common medical school preparation prerequisites. Some of the courses listed may be accomplished as part of your A/P credits, First-Year engineering curriculum, or IDES required core curriculum. Meet with an academic advisor to ensure all requirements of your IDES degree plan, and medical school are being met.

General Biology with lab

- BIOL 11000 - Fundamentals Of Biology I and
- BIOL 11100 - Fundamentals Of Biology II
or
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms and
- BIOL 23100 - Biology III: Cell Structure And Function and
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
or
- BIOL 23000 - Biology Of The Living Cell and
- Upper level biology (including 2 hours of lab)

Anatomy & Physiology (recommended for the MCAT)

- BIOL 20300 - Human Anatomy And Physiology and
- BIOL 20400 - Human Anatomy And Physiology
or
- BIOL 30100 - Human Design: Anatomy And Physiology and
- BIOL 30200 - Human Design: Anatomy And Physiology

General Chemistry with lab

CHM 115/116 normally accomplished through FYE curriculum. Or, selection of one to two other course options required.

- CHM 11500 - General Chemistry and
- CHM 11600 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I and
- CHM 12400 - General Chemistry For Engineers II
or
- CHM 12500 - Introduction To Chemistry I and
- CHM 12600 - Introduction To Chemistry II
or
- CHM 13600 - General Chemistry Honors
or
- CHM 12901 - General Chemistry With A Biological Focus (CHM 11500 credit exam recommended along with CHM 12901)

Organic Chemistry with lab

- CHM 25500 - Organic Chemistry and
- CHM 25600 - Organic Chemistry
or
- CHM 26100 - Organic Chemistry and
- CHM 26200 - Organic Chemistry
or
- CHM 26505 - Organic Chemistry and
- CHM 26605 - Organic Chemistry

or

- MCMP 20400 - Organic Chemistry I and
- MCMP 20500 - Organic Chemistry II

Biochemistry

- CHM 33300 - Principles Of Biochemistry
- or
- CHM 33900 - Biochemistry: A Molecular Approach
- or
- CHM 53300 - Introductory Biochemistry
- or
- BCHM 30700 - Biochemistry
- or
- CHM 56100 - Fundamental Organic Chemistry
- or
- MCMP 20800 - Biochemistry For Pharmaceutical Sciences

Physics with lab

PHYS 17200 normally accomplished through FYE curriculum. Second course required from list below, or selection of two other options.

- PHYS 22000 - General Physics and
 - PHYS 22100 - General Physics
- or
- PHYS 23300 - Physics For Life Sciences I and
 - PHYS 23400 - Physics For Life Sciences II
- or
- PHYS 17200 - Modern Mechanics and
 - PHYS 27200 - Electric And Magnetic Interactions
- or
- PHYS 17200 Modern Mechanics and
 - PHYS 24100 - Electricity And Optics (may need 1 hr lab such as PHYS 25200)

English (if required usually need 2 semesters)

First course generally accomplished through FYE curriculum.

- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition
- or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity and
 - Another English course with strong writing component (either writing or literature)

Psychology (1 semester)

- PSY 12000 - Elementary Psychology

Sociology (1 semester)

- SOC 10000 - Introductory Sociology or
- Higher level sociology course (Anthropology is also acceptable)

Statistics (recommended)

A course in statistics is recommended; normally accomplished through required IDES core course.

Pre-Med Planning Seminar (optional)

BIOL 39600 is a 0 credit 10 week class covering how to apply to medical school and other health professions programs

- BIOL 39600 - Premedical Planning Seminar

Theatre Engineering Concentration in Multidisciplinary Engineering

Theatre Engineering Concentration (36 credits)

Mechanical/Electrical Scenery Option

Required Courses

- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 20100 - Theatre Appreciation (Counts 3 credits toward General Education Humanities requirement)
- THTR 36800 - Theatre Production II
- THTR 55000 - Advanced Scenery Technology (6 credits)
- THTR 59700 - Production And Design Seminar (6 credits - Counts 3 credits toward General Education non-introductory course requirement and 3 credits toward Area Required)

Area Selectives

- Area classes are chosen based on a student's educational objectives. These may be chosen to complete minors. Consult with academic advisor. (1 credit)

Engineering Electives

- Engineering electives are chosen based on a student's educational objective. Consult with academic advisor. (12 credits)

Design Selective

- Design option must be approved after consulting with academic advisor. (3 credits) Some examples are: EPCS 30000+ level
- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 27000 - Introduction To Digital System Design
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship (CODO from Mechanical Engineering only.)
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

Structural Scenery Option

Required Courses

- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 20100 - Theatre Appreciation (Counts 3 credits toward General Education Humanities requirement)
- THTR 36800 - Theatre Production II
- THTR 55000 - Advanced Scenery Technology
- THTR 57001 - Statics And Structures For Theatre I
- THTR 59700 - Production And Design Seminar (6 credits - Counts 3 credits toward General Education non-introductory course requirement and 3 credits toward Area Required)

Area Selectives

- Area classes are chosen based on a student's educational objectives. These may be chosen to complete minors. Consult with academic advisor. (1 credit)

Engineering Elective

- Engineering electives are chosen based on a student's educational objective. Consult with academic advisor. (12 credits)

Design Selective

- Design option must be approved after consulting with academic advisor. (3 credits) Some examples are: EPCS 30000+ level
- AAE 25100 - Introduction To Aerospace Design
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- ABE 33000 - Design Of Machine Components
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design

- ECE 27000 - Introduction To Digital System Design
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship (CODO from Mechanical Engineering only)
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

Visual Design Engineering Concentration for Multidisciplinary Engineering

Visual Design Engineering Concentration (30 credits)

Area Selectives

- Courses from CGT (Computer Graphics Technology) + AD (Art & Design) with at least 5 credits of CGT and at least 6 credits of AD. (15 credits).
- 20 credits total (AD + CGT) are required for this plan.

Engineering Electives

- Engineering electives are chosen based on a student's educational objectives. Consult with academic advisor. (12 credits)

Design Elective

- Design option must be approved, consult with academic advisor. Some examples are: EPCS 30000+ level (3 credits), and the following:
- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 27000 - Introduction To Digital System Design
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship (CODO from Mechanical Engineering only.)
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

General Education

- General education courses for the Multidisciplinary major can be taken from the College of Liberal Arts, the School of Management, and/or the Honrs College provided such courses are not focused on primarily on engineering, technology, the natural sciences or mathematics. Consult with academic advisor for acceptable general education courses. (3 Credits of 24 credits of general education courses(required in all plans) must be from AD -Art & Design).

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, 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 sustainability. 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 Sustainability: 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 sustainability 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:

1. Be prepared to assume immediate employment in the field of environmental & ecological engineering or to continue education in an advanced degree program;
2. Participate fully & ethically in the advancement of the profession within five years of graduation, as measured by one or more of the following:
 - a. Achievement of, or significant progress toward, professional licensure
 - b. Achievement of, or significant progress toward, an advanced degree
 - c. Publication of research results and/or field reports
 - d. Advancement to a leadership role within an engineering organization
 - e. Advancement to a leadership role within organizations, agencies, or companies who offer solutions to major societal and environmental issues

Student Outcomes

Upon graduation, graduates of EEE will show:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Faculty

Contact Information

Division of Environmental and Ecological Engineering

Purdue University

Potter Engineering Center, Room 364

500 Central Drive

West Lafayette, IN 47907-2022

Phone: (765) 496-9697

Fax: (754) 494-4482

Email: eee@purdue.edu

Baccalaureate

Environmental and Ecological Engineering, BSEEE

About the Program

The Environmental and Ecological Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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 sustainability. The EEE program strives for resilient design thinking that takes into account complexity and connectivity between systems.

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- **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 Sustainability:** 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 sustainability and industrial processes; air quality.

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Graduates of the EEE Undergraduate Program will:

1. Be prepared to assume immediate employment in the field of environmental and ecological engineering or to continue education in an advanced degree program;
2. Participate fully & ethically in the advancement of the profession within five years of graduation, as measured by one or more of the following:
 - a. Achievement of, or significant progress toward, professional licensure
 - b. Achievement of, or significant progress toward, an advanced degree
 - c. Publication of research results and/or field reports
 - d. Advancement to a leadership role within an engineering organization
 - e. Advancement to a leadership role within organizations, agencies, or companies who offer solutions to major societal and environmental issues

Program Outcomes

Upon graduation, graduates of EEE will show:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Degree Requirements

128 Credits Required

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
- 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 ♦ (Fall) - Credit Hours: 1.00
- EEE 48000 - Environmental And Ecological Engineering Senior Design (Spring) - Credit Hours: 2.00
- 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

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

- EEE Selective 1 - Category A - Credit Hours: 3.00
- EEE Selective 2 - Category B - Credit Hours: 3.00
- EEE Selective 3 - Category C - Credit Hours: 3.00
- EEE Selective 4 - Credit Hours: 3.00
- EEE Selective 5 - Credit Hours: 3.00
- EEE Selective 6 - Credit Hours: 3.00
- Technical Elective 1 - Credit Hours: 2.00
- Technical Elective 2 - Credit Hours: 3.00

Other Departmental/Program Course Requirements (61 credits)

[Click here for First-Year Engineering requirements.](#)

- (If pursuing Bachelor of Science in Environmental and Ecological Engineering, CHM 11600 - General Chemistry is required to graduate, but not required to complete the First Year Engineering program.)
- MA 26100 - Multivariate Calculus ♦
- MA 26200 - Linear Algebra And Differential Equations
- CE 29700 - Basic Mechanics I (Statics) ♦ or
- ME 27000 - Basic Mechanics I ♦
- ME 20000 - Thermodynamics I
- CE 29800 - Basic Mechanics II Dynamics ♦ or
- ME 27400 - Basic Mechanics II ♦
- CE 34000 - Hydraulics ♦
- CE 34300 - Elementary Hydraulics Laboratory
Choose Statistics course:
- IE 33000 - Probability And Statistics In Engineering II or
- STAT 35000 - Introduction To Statistics
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (Satisfies Science, Technology, & Society for core)
- BIOL 28600 - Introduction To Ecology And Evolution
- FNR 58600 - Urban Ecology

EEE General Education Electives (18 credits)

- EEE General Education Electives (satisfies Humanities for core) - Credit Hours: 3.00
- EEE General Education Elective (satisfies Behavior/Social Science for core) - Credit Hours: 3.00
- EEE intersection of Society/Environment - Credit Hours: 3.00
- EEE General Education Electives - Credit Hours: 9.00

Elective (2-3 credits)

- Elective (2-3 credits)

Additional Degree Requirements

Environmental and Ecological Engineering Supplemental Information

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Environmental and Ecological Engineering Program Requirements

Fall 2nd Year

- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 29000 - Introduction to Environmental And Ecological Engineering Seminar
- MA 26100 - Multivariate Calculus ♦
- CE 29700 - Basic Mechanics I (Statics) ♦ or
- ME 27000 - Basic Mechanics I ♦
- Technical Elective 1 - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

17 Credits

Spring 2nd Year

- EEE 35000 - Introduction To Environmental And Ecological Engineering ♦ or
- CE 35000 - Introduction To Environmental And Ecological Engineering ♦
- MA 26200 - Linear Algebra And Differential Equations
- ME 20000 - Thermodynamics I
- CE 29800 - Basic Mechanics II Dynamics ♦ or
- ME 27400 - Basic Mechanics II ♦
- General Education Elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- EEE 36000 - Environmental And Ecological Engineering Laboratory ♦ or
- EEE Selective 2 - Category B - Credit Hours: 3.00

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦

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

- CE 34000 - Hydraulics ♦
- CE 34300 - Elementary Hydraulics Laboratory
- EEE Selective 1 - Category A - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

18 Credits

Spring 3rd Year

- EEE 30000 - Environmental And Ecological Systems Modeling
- 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 36000 - Environmental And Ecological Engineering Laboratory ♦ or
- EEE Selective 2 - Category B - Credit Hours: 3.00

- IE 33000 - Probability And Statistics In Engineering II or
- STAT 35000 - Introduction To Statistics

15 Credits

Fall 4th Year

- EEE 48000 - Environmental And Ecological Engineering Senior Design ♦ - Credit Hours: 1.00
- FNR 58600 - Urban Ecology
- EEE Selective 3 - Category C - Credit Hours: 3.00
- EEE Selective 4 - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- Technical Elective 2 - Credit Hours: 2.00

15 Credits

Spring 4th Year

- EEE 48000 - Environmental And Ecological Engineering Senior Design - Credit Hours: 2.00
- EEE Selective 5 - Credit Hours: 3.00
- EEE Selective 6 - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00-3.00

16-17 Credits

Notes

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 GPA required in College of Engineering courses at the 20000-level and above.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Environmental and Ecological Engineering Minor

EEE offers a minor in **Environmental and Ecological Engineering**, as a mechanism for students in all branches of engineering, and other related fields, to gain expertise and qualifications in EEE fields. The minor is most appropriate for students who have particular environmental interests in engineering, or who want to develop a career at the interface of EEE and their chosen major field. Environmental concerns touch all aspects of engineering, making this an attractive option for many students, and an attractive set of qualifications for many prospective employers.

The minor consists of six courses, and is available to any student at Purdue who has met the co- and/or pre-requisites for courses in the EEE minor.

Requirements for the Minor (17-19 Credits)

Required Courses (11-13 credits)

- 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

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

- EEE 43000 - Industrial Ecology And Life Cycle Analysis or
- EEE 53000 - Life Cycle Assessment: Principles And Applications

- BIOL 28600 - Introduction To Ecology And Evolution or
- FNR 59800 - Topical Problems In Forestry And Natural Resources (Course Title: Urban Ecology)

Selective Courses - Choose Two (6 credits minimum)

- Environmental and Ecological Engineering Minor Selectives

Notes

- Students must earn a "C" or better grade in any course used to fulfill a requirement for the Environmental and Ecological Engineering minor.

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Environmental and Ecological Engineering Minor Selectives

Selective Courses - Choose Two (6 credits minimum)

- ABE 32500 - Soil And Water Resource Engineering *
- ABE 52700 - Computer Models In Environmental And Natural Resources Engineering
- ABE 59100 - Special Topics (Ecol Engr & Ecosys Rest)
- AGRY 25500 - Soil Science
- AGRY 33700 - Environmental Hydrology
- AGRY 38500 - Environmental Soil Chemistry
- AGRY 45000 - Soil Conservation and Water Management
- AGRY 54000 - Soil Chemistry
- AGRY 54400 - Environmental Organic Chemistry
- AGRY 54500 - Remote Sensing Of Land Resources

- AGRY 56000 - Soil Physics
- AGRY 58000 - Soil Microbiology
- AGRY 58500 - Soils And Land Use
- ASM 54000 - Geographic Information System Application
- BCM 51000 - Topics In Environmentally Sustainable Construction, Design And Development
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 54900 - Microbial Ecology
- CE 31100 - Architectural Engineering *
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 38300 - Geotechnical Engineering I
- CE 40800 - Geographic Information Systems In Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 44000 - Urban Hydraulics
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45600 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects (Water Treatment)
- CE 51200 - The Comprehensive Urban Planning Process
- CE 51501 - Building Energy Audits
- CE 54000 - Open Channel Hydraulics
- CE 54200 - Hydrology
- CE 54300 - Coastal Engineering
- CE 54500 - Sediment Transport Engineering
- CE 54900 - Computational Watershed Hydrology
- CE 55000 - Physico-Chemical Processes In Environmental Engineering I
- CE 55700 - Air Quality Management
- CE 59300 - Environmental Geotechnology
- CE 59700 - Civil Engineering Projects (Environ Analytical Chemistry, Geographic Information Systems, Sustainable Building Design Construction & Operations, Polymers In Infrastructure & Environment, Water Chemistry Environmental Ecological Engineering)
- CHE 59700 - Special Topics In Chemical Engineering (Advanced Solar Conversion)
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 32000 - Physics Of Climate
- EAPS 58300 - Geology Of Landfills
- EAPS 58400 - Hydrogeology *
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- EEE 45600 - Wastewater Treatment Processes
- EEE 49500 - Experimental Course (Environmental Ecological Regulation & Compliance, Urban Water Projects)
- EEE 49800 - Environmental And Ecological Engineering Projects - Ind. Research proposal required. Only 3 credits may be applied toward EEE minor.
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- EEE 59500 - Environmental And Ecological Engineering Projects (Any Title) - students must confirm they have appropriate requisite knowledge with instructor or EEE office.
- EDCI 50600 - Environmental Education
- FNR 35700 - Fundamental Remote Sensing
- FNR 54300 - Conservation Biology I

- FNR 55800 - Remote Sensing Analysis And Applications *
- FNR 59800 - Topical Problems In Forestry And Natural Resources (Urban Ecology)
- ME 41300 - Noise Control
- ME 43000 - Power Engineering
- ME 49200 - Technology And Values
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I (Solar Energy Technology)
- MET 42200 - Power Plants And Energy Conversion
- MSE 59700 - Selected Topics In Materials Engineering (Lean Manufacturing)
- NRES 38500 - Environmental Soil Chemistry
- NRES 45000 - Soil Conservation And Water Management
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 47000 - Fuel Cell Engineering

Note:

- Courses with an asterisk* can count for EEE Minor Selective only if they are not used to satisfy required course options.
- Variable title = temporary or special topics number. Course title must match. These courses may be granted permanent course numbers in the future.

Environmental and Ecological Engineering Supplemental Information

Approved EEE Selectives

For several elective and selective requirements, lists of acceptable courses will be maintained by the EEE Associate Director of Advising, with approval of changes by the EEE Academics Committee. In addition, students will be able to petition the EEE Academics Committee to have other courses (including one-time special offerings) count for one of the requirements. These lists are therefore considered dynamic, and it is anticipated that small changes will be made to the lists regularly.

All Plans of Study are ultimately subject to approval by the EEE Academics Committee. The EEE curricular guidelines were designed to maximize flexibility so individualized student-centered Plans of Study can be crafted. Proposed Plans of Study without sufficient rigor and academic integrity worthy of earning a BSEEE will not be permitted.

Many courses have prerequisites. It is the student's responsibility to integrate prerequisite courses into the overall Plan of Study.

Rules for EEE Selectives

1. At least six courses, comprising at least 18 credits, are required.
2. At least nine of the 18 credits must be in the College of Engineering at the 20000-level or above. Of these, at least three credits must be at the 40000-level or above.
3. At least one course (or three credits) must focus on Earth Science (Category A).
4. At least one course (or three credits) must be classified as an "engineering design" course (Category B).
5. At least one course (or three credits) must be classified as "EEE Professional Practice" course (Category C).
6. Students are encouraged to propose a selective plan of study which integrates personal career goals with Purdue coursework. Plans of study require approval from the EEE advisor, the EEE Faculty Mentor and EEE Academics Committee.

7. Students are allowed and encouraged to choose more than nine credits from the Universally Approved (ABC categories) list.

Category A - Earth Science (3 credits minimum)

- AGRY 25500 - Soil Science
- AGRY 33700 - Environmental Hydrology
- CE 54200 - Hydrology
- EAPS 32000 - Physics Of Climate
- EAPS 58400 - Hydrogeology

Category B - Engineering Design (3 credits minimum)

- ABE 32500 - Soil And Water Resource Engineering
- CE 44000 - Urban Hydraulics
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects
 - Water Treatment
- EEE 45600 - Wastewater Treatment Processes
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- EEE 59500 - Environmental And Ecological Engineering Projects
 - Solid & Hazardous Waste Management

Category C - Engineering Fundamentals/EEE Professional Practice (3 credits minimum)

- AGRY 38500 - Environmental Soil Chemistry
- ASM 54000 - Geographic Information System Application
- CE 31100 - Architectural Engineering
- CE 38300 - Geotechnical Engineering I
- CE 40800 - Geographic Information Systems In Engineering
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 55700 - Air Quality Management
- CE 59700 - Civil Engineering Projects
 - Geographic Information Systems
 - Water Chemistry Environmental Ecological Engineering
- EEE 49500 - Experimental Course
 - Environmental Ecological Regulation & Compliance - Credit Hours: 1.00
- FNR 21000 - Natural Resource Information Management
- IE 34300 - Engineering Economics

Historically Acceptable EEE Selectives

All courses listed below are subject to approval for selective credit.

- ABE 32500 - Soil And Water Resource Engineering
- ABE 52700 - Computer Models In Environmental And Natural Resources Engineering

- ABE 56000 - Biosensors: Fundamentals and Applications
- ABE 59100 - Special Topics
 - Ecol Engr & Ecosys Rest
- AGRY 25500 - Soil Science
- AGRY 33700 - Environmental Hydrology
- AGRY 38500 - Environmental Soil Chemistry
- AGRY 45000 - Soil Conservation and Water Management
- AGRY 54000 - Soil Chemistry
- AGRY 54400 - Environmental Organic Chemistry
- AGRY 54500 - Remote Sensing Of Land Resources
- AGRY 56000 - Soil Physics
- AGRY 58000 - Soil Microbiology
- AGRY 58500 - Soils And Land Use
- ASM 54000 - Geographic Information System Application
- BCM 51000 - Topics In Environmentally Sustainable Construction, Design And Development
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 54900 - Microbial Ecology
- CE 31100 - Architectural Engineering
- CE 38300 - Geotechnical Engineering I
- CE 40800 - Geographic Information Systems In Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 44000 - Urban Hydraulics
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects
 - Community Resilience: Urban to Rural
 - Water Treatment
- CE 51200 - The Comprehensive Urban Planning Process
- CE 51501 - Building Energy Audits
- CE 54000 - Open Channel Hydraulics
- CE 54200 - Hydrology
- CE 54300 - Coastal Engineering
- CE 54500 - Sediment Transport Engineering
- CE 54900 - Computational Watershed Hydrology
- CE 55000 - Physico-Chemical Processes In Environmental Engineering I
- CE 55700 - Air Quality Management
- CE 59300 - Environmental Geotechnology
- CE 59700 - Civil Engineering Projects
 - Environ Analytical Chemistry
 - Geographic Information Systems
 - Sustainable Building Design Construction & Operations
 - Polymers In Infrastructure & Environment
 - Water Chemistry Environmental Ecological Engineering
- CHE 59700 - Special Topics In Chemical Engineering
 - Advanced Solar Conversion
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 32000 - Physics Of Climate
- EAPS 58300 - Geology Of Landfills

- EAPS 58400 - Hydrogeology
- EDCI 50600 - Environmental Education
- EEE 36000 - Environmental And Ecological Engineering Laboratory (*First 3 credits are required as core; additional titled credits may be used for selective*)
- EEE 45600 - Wastewater Treatment Processes
- EEE 49500 - Experimental Course
 - Environmental Ecological Regulation & Compliance
 - Urban Water Projects
- EEE 49800 - Environmental And Ecological Engineering Projects (*Indiv. Research proposal required; 3 credits maximum may be applied toward BSEEE*)
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- EEE 59500 - Environmental And Ecological Engineering Projects (*Any title - Students must confirm they have appropriate requisite knowledge with instructor or EEE office*)
- EPCS Participation - Credit Hours: 3.00 (*Project must be environmental engineering related and the courses must be taken in consecutive semesters and be dedicated to the same project.*)
- FNR 35700 - Fundamental Remote Sensing
- FNR 54300 - Conservation Biology I
- FNR 55800 - Remote Sensing Analysis And Applications
- GEP Participation - Credit Hours: 3.00 (*Project must be environmental engineering related and the courses must be taken in consecutive semesters and be dedicated to the same project.*)
- IE 34300 - Engineering Economics
- ME 41300 - Noise Control
- ME 43000 - Power Engineering
- ME 49200 - Technology And Values
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I
 - Solar Energy Technology
- MET 42200 - Power Plants And Energy Conversion
- MET 52700 - Technology From A Global Perspective
- MSE 59700 - Selected Topics In Materials Engineering
 - Lean Manufacturing
- NRES 38500 - Environmental Soil Chemistry
- NRES 45000 - Soil Conservation And Water Management
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 47000 - Fuel Cell Engineering

Technical Electives (5 credit minimum required)

Technical Electives are broadly defined as any course in a technical field, typically from the Colleges of Engineering, Agriculture, Science, or Polytechnic Institute. It is recommended that a student choose additional EEE Selectives to satisfy this requirement, or take prerequisite courses to prepare for advanced EEE Selectives that the student is interested in. Beyond the recommendation to meet the Technical Elective requirement with courses from the EEE Selectives list, should a student instead want more breadth or exposure to varied topics, the list below identifies courses that are approved Technical Electives. Remedial courses are not allowed.

- EAPS 32700 - Climate, Science And Society
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing

- ENGL 43300 - Writing Proposals And Grants
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49400 - Women In Engineering Senior Seminar: Gender In The Workplace
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ENTR 31000 - Marketing And Management For New Ventures
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- NRES 28000 - Hazardous Waste Handling
- OLS 25200 - Human Relations In Organizations
- OLS 27400 - Applied Leadership

EEE General Education Program Requirements (18 credits minimum)

Students are strongly encouraged to develop a coherent general education plan, and distribute their general education credits throughout their academic program.

The collection of courses used to fulfill this requirement must meet all of the following conditions:

1. Students must select from the list of courses approved by the University Core Council to satisfy each of the six Foundational Learning Outcomes listed below. Some courses may have been approved to meet more than one of the Foundational Learning Outcomes, so fewer than six courses can be used to fulfill this condition. There is no minimum number of credit hours needed to satisfy this component of the College of Engineering General Education Program. *(Students must earn a C- or better in courses used to satisfy this component of the EEE General Education Program.)*

- Written Communication (WC)
- Oral Communication (OC)
- Information Literacy (IL)
- Human Cultures: Humanities (H)
- Human Cultures: Behavior/Social Science (BSS)
- Science, Technology, and Society (STS)

2. Students must take additional approved courses to reach the minimum requirement, selected as follows:

- All courses approved by the University Core Council as meeting a Foundational Learning Outcome.
- Courses must be drawn from those offered by the departments of Agricultural Economics, Speech, Language, and Hearing Sciences, Child Development and Family Studies, Communication, Economics, English, Foreign Languages and Literatures, History, Interdisciplinary Studies, Philosophy, Political Sciences, Psychological Sciences, Sociology and Anthropology, Visual and Performing Arts. In general, this relates to the following subject codes: AAS, AD, AGECE, AMST, ANTH, ARAB, ASAM, ASL, CHNS, CLCS, CMPL, COM, DANC, ECON, ENGL, FLL/LC, FR, GER, GREK, HDFS, HEBR, HIST, IDIS, ITAL, JWST, JPNS, LALS, LATN, LING, MARS, MUS, PHIL, POL, PSY, PTGS, REL, RUSS, SLHS, SOC, SPAN, THTR, WGSS.
- Any course offered by these departments is allowable, provided that it is open to students in the offering department and is not focused primarily on professional training, natural science or mathematics.

3. At least 6 required credit hours must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department.

4. At least 3 credit hours in a course at the intersection of Society and the Environment. These are generally in environmental law, environmental policy, environmental history, environmental humanities, or environmental education. **See list below.**

5. At least 12 required credit hours must be taken from the College of Liberal Arts, and/or the Honors College provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics.

6. In order to ensure sufficient exposure to topics dealing with global, societal and contemporary issues, at least 9 credit hours must be drawn from courses offered by the departments of Agricultural Economics, Economics, Communication, Foreign Languages and Literatures, History, Interdisciplinary Studies, Philosophy, Political Sciences, Psychological Sciences, or Sociology and Anthropology.

- AD 39700 - Sustainability In The Built Environment
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 41500 - Community And Resource Development
- AGECE 52500 - Environmental Policy Analysis
- ANTH 32700 - Environment And Culture
- ENGL 23400 - Ecological Literature
- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- PHIL 29000 - Environmental Ethics
- PHIL 49000 - Advanced Topics In Philosophy
 - Climate Change & The Moral Psych Of Existential Threat
- POL 22300 - Introduction To Environmental Policy
- POL 32300 - Comparative Environmental Policy
- POL 32700 - Global Green Politics
- POL 42300 - International Environmental Policy
- POL 42500 - Environmental Law And Politics
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
 - Health, Sustain & Built Environment
- POL 52000 - Special Topics In Public Policy
 - Policy Analysis Climate Change
- POL 52300 - Environmental Politics And Public Policy

School of Industrial Engineering

About Industrial Engineering

Industrial engineers design, analyze, and manage 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. To achieve these objectives, an industrial engineer draws upon knowledge of mathematics, along with physical, engineering, management, and behavioral sciences to function as a problem-solver, innovator, designer, coordinator, and system integrator. Industrial engineers are employed in and apply their skills in an extremely wide range of organizations, including manufacturing industries, service industries, and governmental agencies.

The complexity of these organizations and the emphasis on increased effectiveness, efficiency, and productivity have led to a growing need for industrial engineering analysis and design, resulting in an increased demand for industrial engineering graduates. This increased demand recognizes the modern industrial engineer's versatility and responsiveness to the challenges of a rapidly changing society. Industrial engineering is one of the nation's largest and most rapidly growing engineering professions.

The industrial engineering program prepares graduates for careers in all phases of industrial engineering and enables them to perform both technical and managerial functions that require scientific and engineering backgrounds. By combining the study of science, mathematics, engineering fundamentals, design, and management principles, an industrial engineering education provides a unique background and a sound basis for lifelong career development in engineering practice, research, or management.

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.

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

The Industrial Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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Degree Requirements

123 Credits Required

Industrial Engineering Major Requirements (51 credits)

Required IE Courses (36 credits)

- IE 20000 - Industrial Engineering Seminar
- IE 23000 - Probability And Statistics In Engineering I
- 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 34300 - Engineering Economics
- 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)

Basic Requirements IE Courses Tech Electives (6 credits)

Option 1:

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

Option II:

- IE 47000 Manufacturing Processes II or
- IE 48400 Integrated Production Systems II
AND
- Approved course offered within the School of Industrial Engineering (either at senior-undergraduate or 50000-level) -
Credit Hours: 3.00

IE Technical Electives (9 credits)

- Industrial Engineering Technical Electives - Credit Hours: 9.00

Other Departmental/Program Course Requirements (54-55 credits)

[Click here for First-Year Engineering Requirements](#)

- (If pursuing Bachelor of Science in Industrial Engineering, CS 15900 - Prog Appl for Engineers is required to graduate, but not required to complete the First Year Engineering program.)
- ECE 20100 - Linear Circuit Analysis I
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- ME 27000 - Basic Mechanics I
- ME 20000 - Thermodynamics I
- NUCL 27300 - Mechanics Of Materials
- PHYS 24100 - Electricity And Optics

General Education Elective Requirements (18 credits)

- General Education Elective I - Credit Hours: 3.00 (Satisfies Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (Satisfies Behavioral/Social Science for core)
- General Education Elective III - Credit Hours: 3.00 (Satisfies Science, Tech & Society for core)
- General Education Elective IV - Credit Hours: 3.00 (Satisfies Information Literacy for core, if needed)
- General Education Elective V - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

Additional Requirements

[Click here for Industrial Engineering Technical Electives](#)

[Click here for Industrial Engineering General Education Requirements](#)

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Industrial Engineering Program Requirements

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- ME 27000 - Basic Mechanics I
- IE 20000 - Industrial Engineering Seminar

- IE 23000 - Probability And Statistics In Engineering I
- IE 34300 - Engineering Economics
- General Elective I - Credit Hours: 3.00

16 Credits

Spring 2nd Year

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

15 Credits

Fall 3rd Year

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

18 Credits

Spring 3rd Year

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

15 Credits

Spring 4th Year

- IE 43100 - Industrial Engineering Design
- IE Technical Elective I - Credit Hours: 3.00
- IE Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- General Elective VI - Credit Hours: 3.00

15 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Engineering degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Manufacturing Minor

A minor in Manufacturing is available to students in the College of Engineering and School of Technology.

Requirements for the Minor (18 credits)

Core Courses (9 credits)

- MFET 34400 - Automated Manufacturing Processes
- MSE 23000 - Structure And Properties Of Materials

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

Elective Courses (9 credits)

Manufacturing Processes, Systems and Planning

- ABE 50100 - Welding Engineering
- IE 47000 - Manufacturing Processes II
- 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 - Advanced Industrial Robotics
- MFET 37400 - Manufacturing Integration I

Advanced Manufacturing

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

Computer-Aided Design in Manufacturing

- 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

Notes

- Must receive a grade of "C" or better in all of the courses 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.)

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Industrial Engineering General Education Requirements

Courses

GENERAL EDUCATION PROGRAM

SCHOOL OF INDUSTRIAL ENGINEERING

1.) The General Education Program for Engineering Students

While a comprehensive understanding of science and mathematics is central and foundational to effective engineering practice, real-world engineering problems are both complex and situated within dynamic social, political, and cultural contexts. Therefore, well-rounded engineering curricula must also include courses that encompass the breadth of human experience and culture, both past and present. Such courses may include, but are not limited to, those that explore individual behavior, social and political structures, aesthetic values, modes and dynamics of communication, philosophical and ethical thought, and cognitive processes. These types of courses provide engineering students with a framework for rational inquiry, critical evaluation, and judgment when dealing with issues that are non-quantifiable, ambiguous, and/or controversial. In addition, they offer engineering students the opportunity to develop interests and insights that will deepen their appreciation for the diversity of the world in which they live and work.

Based on these premises, the goals of the College of Engineering General Education Program are to

- Provide the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Support and complement the technical content of the engineering curricula through coursework that emphasizes such skills as written communication, oral communication, information literacy, cultural awareness, leadership, innovation, entrepreneurship, and managing change.

These goals are consistent with the objectives of the College of Engineering's Engineer of 2020 initiative (Engineering Faculty Document 15-06 - April 9, 2007), as well as the objectives of Purdue University's Undergraduate Outcomes-Based Curriculum (University Senate Document 11-7 - February 20, 2012).

2.) Program Components

1. Foundational Learning Outcomes (FLOs) (The Science and Quantitative Reasoning Foundational Learning Outcomes are handled elsewhere in the engineering curricula.)
 - Students must select from the list of courses approved by the University Core Council (UCC) to satisfy all six of the Foundational Learning Outcomes (available below)
 - Written Communication
 - Oral Communication
 - Information Literacy
 - Humanities
 - Behavior/Social Science

- Science, Technology, & Society
 - (If a course taken to fulfill some other degree requirement has also been approved as satisfying one or more of these Foundational Learning Outcomes, then those Foundational Learning Outcomes need not be satisfied again within in the IE General Education Program.
1. Students must earn a C- or better in order to receive credit towards meeting each Foundational Learning Outcome listed above and this General Education Program.
 2. 3. At least 24 total credit hours are required.
 3. At least 12 credit hours must be taken from the College of Liberal Arts, the Krannert School of Management, and/or the Honors College provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics.
 4. At least 6 credit hours must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department (e.g. SPAN 10200 requires SPAN 10100 as a pre-requisite).
 5. Courses from the Colleges of Engineering, and Science, and Purdue Polytechnic can only be used towards the general education program if they satisfy FLOs, or if they are approved by the IE Undergraduate Committee (or designee). A list of approved courses from these Colleges is provided in Section 4.
 6. If EPCS courses are used to fulfill a General Education requirement, they may not be used to fulfill a Technical Elective requirement in IE.
 7. Courses must be drawn from either the list of courses approved by the University Core Council (UCC) as meeting an FLO, or from the following Colleges/Schools/Departments*:
 - a. College of Health and Human Sciences
 - b. College of Liberal Arts
 - c. Krannert School of Management
 - d. Entrepreneurship
 - e. Department of Agricultural Economics
 - f. Interdisciplinary Studies
 8. Credit is not allowed for language courses in the student's native tongue(s), although literature, culture, drama, and related courses are allowed. *Special consideration may be given to courses outside of these Colleges/Schools/Departments at the discretion of the IE undergraduate committee (or their designee). Excluded courses from the above Colleges/Schools/Departments will be at the discretion of the IE undergraduate committee (or their designee).

3.) Course Listing for Foundational Learning Outcomes

The courses used for meeting the Foundational Learning Outcomes is maintained by the Undergraduate Curriculum Council.

4.) List of Colleges/Schools/Departments eligible for GE courses

The following is a listing of the Colleges, Schools, and Departments and the course IDs associated with each. Unless a course is specifically excluded from the GE program within an otherwise approved college/school/department, any course is eligible within the below lists provided it does not focus primarily on engineering, technology, the natural science, or mathematics. Contact the IE advising office if you have concerns about a course qualifying as a GE.

- College of Health and Human Sciences:
 - American Sign Language (ASL)
 - Consumer Science & Retailing (CSR)
 - Human Development & Family Studies (HDFS)
 - Health & Human Sciences (HHS)

- Health & Kinesiology (HK)
 - Health Sciences (HSCI)
 - Hospitality & Tourism Management (HTM)
 - Nursing (NUR)
 - Nutrition Science (NUTR)
 - Psychology (PSY)
 - Speech, Language & Hearing Science (SLHS)
 - Youth Development & Ag Education (YDAE)
- Krannert School of Management:
 - Economics (ECON)
 - Management (MGMT)
 - Organizational Behavior & Human Resources (OBHR)
- College of Liberal Arts:
 - African American Studies (AAS)
 - Art & Design (AD)
 - Afro-American Studies (AFRO)
 - American Studies (AMST)
 - Anthropology (ANTH)
 - Arabic (ARAB)
 - Asian American Studies (ASAM)
 - Classics (CLCS)
 - Comparative Literature (CMPL)
 - Communication (COM)
 - Dance (DANC)
 - English (ENGL)
 - Foreign Languages & Literatures (FLL)
 - French (FR)
 - Film & Video Studies (FVS)
 - German (GER)
 - Greek (GREK)
 - Hebrew (HEBR)
 - History (HIST)
 - Honors (HONR)
 - Interdisciplinary Studies (IDIS)
 - Italian (ITAL)
 - Japanese (JPNS)
 - Jewish Studies (JWST)
 - Latin American & Latino Studies (LALS)
 - Latin (LATN)
 - Languages & Cultures (LC)
 - Linguistics (LING)
 - Medieval & Renaissance Studies (MARS)
 - Military Science & Leadership (MSL)*
 - Music History & Theory (MUS)
 - Naval Science (NS)*
 - Philosophy (PHIL)
 - Political Science (POL)
 - Portuguese (PORT)
 - Religious Studies (REL)
 - Russian (RUSS)

- Sociology (SOC)
 - Spanish (SPAN)
 - Theatre (THTR)
 - Women, Gender & Sexuality Studies (WGSS)
 - * MSL or NS courses must be worth at least 3 credit hours
- Other Approved Catalog Listings:
 - Entrepreneurship (ENTR)
 - Department of Agricultural Economics (AGEC)
 - Engineering Project Community Service (EPCS) - 3 credit hours required

4.1) List of Prohibited Courses

This is not an exhaustive list and will be updated at least once per academic year.

- MGMT 20010
- MGMT 30400/31000
- MGMT 30500
- MGMT 30600
- MGMT 36100
- MGMT 40500
- ECON 36000
- PSY 20100
- PSY 20300
- PSY 30600
- SOC 38200
- SOC 38300

4.2) List of Approved Courses from the Colleges of Engineering, Science, or Purdue Polytechnic

* This list only includes courses that are not useful in satisfying Foundational Learning Outcomes.

- ME 49700 (Intercultural Teamwork)
- ME 29700 (Chinese Culture)

IT IS THE RESPONSIBILITY OF THE STUDENT TO MAKE SURE THAT THE PROVISIONS FOR THE GENERAL EDUCATION PROGRAM ARE SATISFIED AS A CONDITION OF GRADUATION.

Industrial Engineering Technical Electives

Technical Elective Program - School of Industrial Engineering

1.) Technical Elective Program for Industrial Engineering students

While this is not a strictly structured program like the General Education program, students are encouraged to treat the selection of technical elective courses in much the same way. Students are encouraged to select technical elective courses based on career objectives.

In general, a technical elective is a course that develops new professional skills and/or builds upon previously obtained skills. Courses must focus on the development of skills in engineering, mathematics, business, or selected natural or social sciences.

2.) Technical Elective Requirements

The following requirements are specified for the technical elective program. These are the most basic requirements. Additional policies and procedures are discussed below and in Section 3.

Each IE student is required to take 15 credit hours of technical electives to complete the BSIE degree requirements. Technical elective courses are chosen from a list of courses approved by the Industrial Engineering Undergraduate Committee; and must include at least 6 credit hours from courses offered within the School of Industrial Engineering (policy outlined in Section 2.1).

Every course taken as a technical elective must be taken for a letter grade. (Courses transferred to Purdue that either correspond to pre-approved technical electives or receive special approval (e.g., study abroad credits) as technical electives must be taken in such a manner as to qualify for Purdue credit even though no grade will appear on the Purdue transcript.)

2.1. Required IE Technical Elective Courses

Of the 15 credit hours of technical electives required, at least 6 credit hours must be taken from courses offered by the School of Industrial Engineering (i.e., must have the course identifier "IE"). There are two available options for IE students to accomplish this requirement.

- Option 1. IE 47000 and IE 48400
- Option 2. IE 47000 or IE 48400; and approved course offered within the School of Industrial Engineering (either at senior-undergraduate or 50000-level)

* The 50000-level IE course listed in Option 1 can be an IE 59000 level course provided it is titled and open to all students who meet the prerequisites. For example, IE 59000 - Financial Engineering is an acceptable IE technical elective.

** Senior-undergraduate courses listed in Option 1 (offered as 4XXXX), in this case, may be special topics courses that are not required for the degree and open to all IE students who meet the prerequisites (for example, IE 48100 - Introduction to System Simulation). This policy also includes courses approved as IE 49000 taken as part of a Semester Exchange program and approved for use in this capacity by the IE Undergraduate Committee or their designee.

2.2. Other Technical Elective Courses

Additional IE courses taken are allowable to contribute to the remaining 9 credit hours of technical electives, within the following guidelines:

- 1.) IE 5XX00-level courses, provided they are titled and open to all students who meet the prerequisites.
- 2.) IE 4XX00-level courses, provided they are not required for the degree and open to all students who meet the prerequisites.
- 2.) IE 49000 - Independent Study courses; any course with this listing must have special approval by the IE Undergraduate Office to be considered for technical elective credit. Details about the process for approval are given in Section 3. (up to 6 credit hours).
- 3.) IE 49900 (Reserved for Engineering Honors students; up to 6 credit hours).
- 4.) IE 49500 (Reserved for Co-Op students; student must complete 3 semesters to earn TE credit)

Students are encouraged to consult the list of pre-approved technical electives contained in the Appendix for potential IE 4XX00 and IE 5XX00-level courses that meet the above guidelines.

Students in IE are encouraged to choose technical elective courses from outside the department if such courses align with their career goals. Each IE student has the option to take up to 9 credit hours of non-IE courses to complete the technical elective requirements. The Appendix contains a list of numerous pre-approved courses offered by other departments.

The general criteria for non-IE courses that may be considered for TE credit are provided below. If a course satisfies the below criteria, but is not on the list of pre-approved TE courses then it is subject to approval by the IE Undergraduate Office. Details about the process for approval are given in Section 3.

- 1.) 30000-level or higher level course taken in any other engineering school that are not duplicates of IE courses.
- 2.) PHYS courses at a level higher than PHYS 24100
- 3.) CHM courses at a level higher than CHM 11600
- 4.) MA courses at a level higher than or equal to MA 34100
- 5.) CS courses at a level higher than or equal to CS 18200, excluding CS 23500

2.3. Prohibited Courses

A prohibited course is a course deemed to have sufficient overlap in course material with an IE course so as to be considered an equivalent course. A list of known prohibited courses is as follows:

- MGMT 20010 (Course is intended for Technology students)
 - *** This course is not to be confused with MGMT 20000 - Introductory Accounting, which is an approved TE.
- MGMT 30500 (IE 23000/33000)
- MGMT 30600 (IE 33500/33600)
- MGMT 30400/31000 (IE 34300)
- MGMT 36100 (IE 38300)
- ECON 36000 (IE 33000/34300)

Note 1: IE courses in parentheses indicate the courses with which the prohibited courses have a material coverage overlap.

Note 2: Most of the above listed courses are useful for the MGMT or ECON minors. A student may still take these courses to satisfy minor requirements, but they will not be used towards the IE plan of study.

2.4. EPICS

Many students choose to participate in Engineering Projects in Community Service (EPICS) during their time at Purdue. These projects include designing, building, and deploying real systems to solve engineering-based problems for local as well as global community service and education organizations.

Students can earn credit for EPICS participation from freshman through senior year with a variable credit hour structure. Freshman and sophomore level students earn 1 credit hour per semester of involvement in EPICS projects. Juniors and seniors can earn either 1 or 2 credit hours per semester of involvement.

All EPICS (EPCS) courses, including those at the 100- to 200- level, up to a maximum of three (3) credits can be used towards the 9 credit hours of technical elective courses that do not need to originate from within IE. If EPCS courses are used to satisfy the Science, Technology, & Society foundational learning outcome as part of the general education program, then those credits cannot be used to count towards technical elective requirements.

2.5 Courses offered by the Purdue Polytechnic Institute

No course offered by the Purdue Polytechnic Institute can be counted towards the IE plan of study unless it is used to satisfy a foundational learning outcome, or otherwise approved as part of the General Education program.

3. Special Approvals for Non-Pre-Approved Technical Elective Courses

Students must petition for a course to be counted as a technical elective if it is not listed on the Pre-Approved list of courses contained in the Appendix. Each course will be evaluated by the IE Undergraduate Office based on the description of a technical elective course given in Section 1, and any additional factors deemed necessary.

To petition for a course approval, the following process must be observed.

1. A student must obtain a "Elective Approval Request Form" (accessible from the IE undergraduate studies webpage).
2. The student must fill in the course information required on the form and attach a syllabus for the course in question. In addition, the student must write a short synopsis of how the course fits the requirements of a technical elective described in Section 1, and its value towards his/her undergraduate education. (Note: a syllabus is required for any course taken at another university.)
3. Student returns the completed form to the IE Undergraduate Office for final processing and decision.

Each student is notified via email if the course is approved or not. All documentation is stored in the student's permanent record.

3.1 Special Approval for Independent Study Courses

These courses are intended to allow IE undergraduates to engage in independent study and individual or small group research projects under the direction of a faculty member. Projects of this kind may be initiated by students or faculty members, but registration and approval of these courses must follow the following process.

3.1.1 Registration for an IE 49000 - Independent Study Course

1. The student must identify a faculty sponsor.
2. The student and faculty member must discuss and agree to the content and focus of the course and the course expectations for both members. Once agreed to a proposal for the project and a list of deliverables must be documented on the "Independent Study Proposal Approval Form" (available on the IE undergraduate advisors).
3. Pick up a Form VT (Variable Title Course Designation Form) here:
<http://www.purdue.edu/registrar/documents/forms/Form-VT.pdf>.

Process for completing the Form VT:

1. Student should fill out items 1-6, the title of the course, and sign (under Authorizations section of the form).
2. Student obtains signature of faculty member sponsoring the course.
3. Return the completed form to the IE undergraduate office for additional signatures. The completed "Independent Study Proposal Approval Form" should be delivered along with the completed Form VT.
4. Once the final signatures are obtained, the student will be notified that the form is ready for pickup so the student may collect from the IE UG office and deliver to the Office of the Registrar for final processing.

The documentation provided to the IE undergraduate office satisfies the information requirement for approval for TE credit as described in Section 3.

IE 49000 - Independent Study courses are typically for 3 credit hours. A student should expect to work 3 hours per week for each credit hour. This means that a student and faculty member should plan on developing a course that requires at least 9 hours per week of work. IE 49000 - Independent Study courses can be created for less than 3 credit hours, but this severely limits the usage of the course on the IE plan of study due to the student needing to make up the remaining credit hours from additional courses. All IE 49000 - Independent Study courses must be taken for a letter grade in order to be used for TE credit.

Courses

- IE 47000 - Manufacturing Processes II
- IE 47200 - Imagine, Model, Make
- IE 48400 - Integrated Production Systems II
- IE 49000 - Special Topics In Industrial Engineering
- IE 52500 - Healthcare Delivery Systems
- IE 53000 - Quality Control
- IE 53200 - Reliability
- IE 53300 - Industrial Applications Of Statistics
- IE 53500 - Linear Programming
- IE 53600 - Stochastic Models In Operations Research I
- IE 53700 - Discrete Optimization Models And Algorithms
- IE 53800 - Nonlinear Optimization Algorithms And Models
- IE 54500 - Engineering Economic Analysis
- IE 54600 - Economic Decisions In Engineering
- IE 55600 - Job Design
- IE 55800 - Safety Engineering
- IE 55900 - Cognitive Engineering Of Interactive Software
- IE 56600 - Production Management Control
- IE 57000 - Manufacturing Process Engineering
- IE 57400 - Industrial Robotics And Flexible Assembly
- IE 57700 - Human Factors In Engineering
- IE 57900 - Design And Control Of Production And Manufacturing Systems
- IE 58000 - Systems Simulation
- IE 58100 - Simulation Design And Analysis
- IE 58200 - Advanced Facilities Design
- IE 58300 - Design And Evaluation Of Material Handling Systems
- IE 58800 - e-Work And e-Service
- IE 59000 - Topics In Industrial Engineering
- AGEC 33100 - Principles Of Selling In Agricultural Business

- CE 35500 - Engineering Environmental Sustainability OR
- EEE 35500 - Engineering Environmental Sustainability

- CS 30700 - Software Engineering I
- CS 31400 - Numerical Methods
- ECE 26400 - Advanced C Programming
- ECON 45100 - Game Theory
- ECON 46100 - Industrial Organization
- ECON 51100 - Intermediate Economics I

- ECON 51200 - Intermediate Economics II
- ECON 56200 - Econometrics I
- ENTR 48000 - Entrepreneurship Capstone
- ENTR 48100 - Consulting For Emerging Enterprises
- ENTR 48200 - Venture Planning Capstone
- MA 34100 - Foundations Of Analysis
- MA 36200 - Topics In Vector Calculus
- MA 37300 - Financial Mathematics
- MA 38500 - Introduction To Logic
- MA 41600 - Probability
- MA 45300 - Elements Of Algebra I
- MA 51000 - Vector Calculus
- MA 51100 - Linear Algebra With Applications
- ME 27400 - Basic Mechanics II
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 32300 - Principles Of Marketing
- MGMT 32400 - Marketing Management
- MGMT 35000 - Intermediate Accounting I
- MGMT 35100 - Intermediate Accounting II
- MGMT 38200 - Management Information Systems
- MGMT 40500 - Six Sigma And Quality Analytics
- MGMT 42500 - Marketing Research
- MGMT 44301 - Management Of Human Resources
- MGMT 45500 - Legal Background For Business I
- MSE 23000 - Structure And Properties Of Materials
- OBHR 33000 - Introduction To Organizational Behavior
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31400 - Introduction To Learning
- PSY 47500 - Work Motivation And Job Satisfaction
- SOC 31600 - Industry And Society
- SOC 57200 - Comparative Healthcare Systems
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments
- STAT 51500 - Statistical Consulting Problem
- STAT 51600 - Basic Probability And Applications
- STAT 51700 - Statistical Inference

School of Materials Engineering

An Overview

Materials Engineering

Materials have enabled improvement in the products humans use since the beginning of recorded history. For example without the development of high purity silicon most of today's electronic devices would not exist. New low density, high stiffness composite materials have replaced metals and wood in tennis racquets. The performance of these materials stems from their properties which depend on their microscopic structure, also known as microstructure. Microstructure in turn depends upon materials processing, the fabrication of materials into functional shapes. Materials Engineering is the study of the interrelationships between processing, structure, properties and performance of materials.

Materials engineers study the structure and composition of materials on scales ranging from the electronic and atomic through the microscopic to the macroscopic. They develop new materials, improve traditional materials and are key people in the manufacturing process to produce materials reliably and economically. They seek to understand phenomena and to measure materials properties of all kinds, and they predict and evaluate the performance of real materials as structural or functional elements in engineering systems. Employment opportunities span all types of industry, such as aerospace, automotive, chemical, electronic, energy and primary material-producing companies.

Faculty

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

Contact Information

School of Materials Engineering

Neil Armstrong Hall of Engineering

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West Lafayette, IN 47907-2045

Telephone: (765) 494-4100

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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

The Materials Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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.

The first three years of study provide the basic educational core. In addition to the broad range of basic sciences and general education courses, the core provides a generic approach to the elements of the field. The core exploits the idea that the field is composed of the key elements of the field: synthesis/processing, composition/structure, properties and performance. This concept provides the foundation across all the materials classes: ceramics, metals, polymers, etc. The senior year, consisting of primarily electives, allows students the opportunity to focus their program toward personal goals in the field.

Materials Engineering

Degree Requirements

125 Credits Required

Materials Engineering Major Courses (69 credits)

Required MSE Courses (45 credits)

- MSE 23000 - Structure And Properties Of Materials
- MSE 23500 - Materials Properties Laboratory
- MSE 25000 - Physical Properties In Engineering Systems
- MSE 26000 - Thermodynamics Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 33000 - Processing And Properties Of Materials
- MSE 33500 - Materials Characterization Laboratory
- MSE 34000 - Transport Phenomena
- MSE 36700 - Materials Processing Laboratory
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 38200 - Mechanical Response Of Materials
- MSE 39000 - Materials Engineering Seminar (taken each semester)
- MSE 42000 - Structure And Properties Of Organic Materials
- MSE 43000 - Materials Processing And Design I
- MSE 44000 - Materials Processing And Design II
- MSE 44500 - Materials Engineering Systems Analysis And Design

MSE General Education Requirement (24 Credits)

Foundation Core

- G.E. I (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- G.E. II (satisfies Human Cultures Behavioral/Social Science for core) - Credit Hours: 3.00
- G.E. III (satisfies Science, Technology & Society for core) - Credit Hours: 3.00

MSE General Education Electives (see the MSE undergraduate manual for an approved list)

- G.E. IV - Credit Hours: 3.00
- G.E. V - Credit Hours: 3.00
- G.E. VI - Credit Hours: 3.00

Other Departmental/Program Course Requirements (62 credits)

[Click here for First-Year Engineering Requirements](#)

- (If pursuing Bachelor of Science in Materials Engineering, CHM 11600 is required to meet degree requirements, but not required to complete the First Year Engineering program.)
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- PHYS 25200 - Electricity And Optics Laboratory
- PHYS 24100 - Electricity And Optics
- PHYS 27200 - Electric And Magnetic Interactions

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 or Support Area Elective I - Credit Hours: 3.00
- Technical Elective VI or Support Area Elective II - Credit Hours: 3.00

Supplemental Information

Materials Science Engineering Technical Electives

Materials Science General Education Supplemental Information

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Materials Engineering Program Requirements

Materials Engineering

Fall 2nd Year

- MA 26100 - Multivariate Calculus ♦
- MA 26500 - Linear Algebra ♦
- MSE 23000 - Structure And Properties Of Materials ♦
- MSE 39000 - Materials Engineering Seminar

- MSE Second Year Course - Credit Hours: 3.00
- MSE Second Year Course - Credit Hours: 3.00

16 Credits

Spring 2nd Year

- MA 26600 - Ordinary Differential Equations ♦
- PHYS 25200 - Electricity And Optics Laboratory
- PHYS 24100 - Electricity And Optics
- MSE 39000 - Materials Engineering Seminar
- General Elective I - Credit Hours: 3.00
- MSE Second Year Course - Credit Hours: 3.00
- MSE Second Year Course - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- MSE 34000 - Transport Phenomena ♦
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials ♦
- MSE 39000 - Materials Engineering Seminar
- MSE 33500 - Materials Characterization Laboratory or
- MSE 36700 - Materials Processing Laboratory
- General Elective II - Credit Hours: 3.00
- General Education Elective III - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- MSE 33000 - Processing And Properties Of Materials
- MSE 38200 - Mechanical Response Of Materials
- MSE 42000 - Structure And Properties Of Organic Materials
- MSE 39000 - Materials Engineering Seminar
- MSE 36700 - Materials Processing Laboratory or
- MSE 33500 - Materials Characterization Laboratory
- Technical Elective I - Credit Hours: 3.00

15 Credits

Fall 4th Year

- MSE 39000 - Materials Engineering Seminar
- MSE 43000 - Materials Processing And Design I

- MSE 44500 - Materials Engineering Systems Analysis And Design
- 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 39000 - Materials Engineering Seminar
- 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

- Students must have a graduation index of 2.0
- And must have a minimum average GPA of 2.0 in MSE 20000 and 30000 level courses.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

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.

Requirements for the Minor (18 credits)

A. Core Requirements (9 credits)

- MSE 23000 - Structure And Properties Of Materials
- MSE 26000 - Thermodynamics Of Materials
- MSE 33000 - Processing And Properties Of Materials

B. Electives - Choose Three (9 credits)

- MSE 27000 - Atomistic Materials Science
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 34000 - Transport Phenomena
- MSE 38200 - Mechanical Response Of Materials
- MSE 42000 - Structure And Properties Of Organic Materials
- MSE 50000-level courses (with Faculty Approval) - Credit Hours: 3.00

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

Notes

- 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.

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

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Materials Science Engineering Technical Electives

Technical and Approved Other Department Courses (18 credits)

- AAE 55200 - Nondestructive Evaluation Of Structures And Materials
- AAE 55300 - Elasticity In Aerospace Engineering
- AAE 55400 - Fatigue Of Structures And Materials
- AAE 55500 - Mechanics Of Composite Materials
- CHE 44200 - Chemistry And Engineering Of High Polymers
- CHE 54300 - Polymerization Reaction Engineering And Reactor Analysis
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- ECE 30500 - Semiconductor Devices
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- ME 41300 - Noise Control
- ME 47300 - Engineering Design Using Modern Materials
- ME 50700 - Laser Processing
- ME 55400 - Intellectual Property For Engineers
- ME 59700 - Advanced Mechanical Engineering Projects I
- ME 55900 - Micromechanics Of Materials
- MSE 49700 - Selected Topics In Materials Engineering
 - Ethics in Engineering Practice (Support or elective)
 - Industrial Ecol & Life Cycle Analysis
- MSE 49900 - Research In Materials Engineering
 - (3 credits max. per semester, 6 credits max. overall)
 - Independent Research
- MSE 50200 - Defects In Solids
- MSE 50500 - Modeling and Simulation of Materials Processing
- MSE 50800 - Phase Transformations In Solids
- MSE 51000 - Microstructural Characterization Techniques
- MSE 51200 - Powder Processing
- MSE 52300 - Physical Ceramics
- MSE 52500 - Struct-Property Relationships Of Engineering Polymers
- MSE 52700 - Introduction To Biomaterials
- MSE 53100 - Quantitative Analysis Of Microstructure
- MSE 53600 - Solidification Of Castings

- MSE 54700 - Introduction To Surface Science
- MSE 54800 - Deposition Processing Of Thin Films And Coatings
- MSE 55000 - Properties Of Solids
- MSE 55500 - Deformation Mechanisms In Crystalline Solids
- MSE 55600 - Fracture Of Materials
- MSE 55900 - Phase Equilibria In Multicomponent Systems
- MSE 56000 - The Production Of Inorganic Materials
- MSE 56700 - Polymer Synthesis
- MSE 57500 - Transport Phenomena In Solids
- MSE 57600 - Corrosion
- MSE 59700 - Selected Topics In Materials Engineering
 - Archeology & Materials Science
 - Manufacturing of Composite Materials
 - Exper. Charact. Advanced Composite Materials
 - Dynamic Behavior of Materials
 - Modeling and Simulation of Materials
 - Introduction to Materials Science & Rechargeable Batteries
 - Introduction to Computational Materials Science
 - Physical Properties of Crystals
 - Steel: Proc & Prop for Applications in Automobiles
 - Soft Materials
- NUCL 47000 - Fuel Cell Engineering
- PHYS 54500 - Solid-State Physics

Support Area Elective

- AAE 25100 - Introduction To Aerospace Design
- AAE 53500 - Propulsion Design, Build, Test
- BIOL 23000 - Biology Of The Living Cell
- BME 55100 - Tissue Engineering
- CE 52400 - Legal Aspects In Engineering Practice
- CE 59700 - Civil Engineering Projects
 - Adv Sensing And Testing
- CHM 26100 - Organic Chemistry
- CHM 26200 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26400 - Organic Chemistry Laboratory
- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- COM 25200 - Writing For Mass Media
- COM 31400 - Advanced Presentational Speaking
- COM 32500 - Interviewing: Principles And Practice
- COM 45300 - Reporting Of Science News
- EAPS 24300 - Earth Materials I
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- ECE 20100 - Linear Circuit Analysis I
- ECE 20200 - Linear Circuit Analysis II
- ECE 20700 - Electronic Measurement Techniques

- EPCS (2 Semesters Required)
- ECE 49500 - Selected Topics In Electrical And Computer Engineering
 - Entrepreneurship
- ENGL 30400 - Advanced Composition
- ENGL 39100 - Composition For English Teachers
- ENGL 40600 - Review Writing
- ENGL 40900 - Intermediate Fiction Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- IE 33000 - Probability And Statistics In Engineering II
- IE 34300 - Engineering Economics
- IE 59000 - Topics In Industrial Engineering
 - Advanced Manufacturing
 - Advanced Nanomanufacturing
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- MA 30100 - An Introduction To Proof Through Real Analysis
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 36200 - Topics In Vector Calculus
- MGMT 30000 level or higher
- ME 27400 - Basic Mechanics II
- ME 49200 - Technology And Values
- MSE 48900 - Ethics In Engineering Practice
- MSE 49700 - Selected Topics In Materials Engineering
- NUCL 56300 - Direct Energy Conversion
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 34200 - Modern Physics
- PHYS 55000 - Introduction To Quantum Mechanics
- PHYS 57000 - Selected Topics In Physics
 - Propulsion Design, Build, Test
 - Phys Chemistry & Nanomaterials
 - Phys & Materials Science of Semiconductor Nanostructures
- STAT 31100 - Introductory Probability
- STAT 35000 - Introduction To Statistics
- STAT 51100 - Statistical Methods
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments
- STAT 51600 - Basic Probability And Applications
- Any Foreign Language any level 20100 or higher

Materials Science General Education Supplemental Information

The General Education Program for Materials Engineering Students (18 credits)

Humanities and social sciences courses encompass the breadth of human experience and culture, both past and present, including individual behavior, social and political structures, aesthetic values, modes and dynamics of communication, philosophical and ethical thought, and cognitive processes. Such courses are an integral part of all engineering curricula which complements technical and professional content by enabling engineering students to appreciate the world in which they live and work, and to contribute as both educated members of society and aware, ethical professionals. Humanities and social sciences courses also provide a framework for rational inquiry, critical evaluation, judgment and decisions when dealing with issues that are non-quantifiable, ambiguous, or controversial. Of equal importance, they offer opportunities for engineering students to develop interests and insights that guide, enrich and expand their perceptions of the world they live in. The General Education Program in the School of Materials Engineering consists of the Foundational Learning Outcomes in Purdue's Core Curriculum plus 9 credit hours from a course list maintained by the School of Materials Engineering. For the General Education program, the following requirements also apply:

- Students must earn a grade of C- or better in courses that satisfy Foundational Learning Outcomes.
- At least six credit hours must be at the 30000 level or above, or from courses with a required pre-requisite in the same department
- No more than 6 credit hours from the Colleges of Engineering, Science, and Technology.

Foundational Learning Outcomes (9 credits)

To satisfy the six Foundational Learning Outcomes, students must select from a list of courses maintained by the Office of the Provost as part of Purdue's Undergraduate Outcomes-based Core Curriculum.

Taken during the First-Year Engineering Program:

1. Written Communication
2. Informational Literacy
3. Oral Communication

One course should also be taken from each of the following Foundational Learning Outcomes for a total of 9 credit hours:

1. Humanities - Credits: 3.00
2. Behavior/Science - Credits: 3.00
3. Science, Technology, & Society - Credit Hours: 3.00

MSE Programmatic Requirements (9 credits)

The following list contains the courses currently approved to complete the 9 credits in the General Education Program for Materials Engineering. The list is updated periodically. If a student is interested in a course not listed, but is thought to fulfill the purpose of the General Education program as described above, the student may petition the undergraduate committee for its inclusion.

- AD 10500 - Design I
- AD 10600 - Design II
- AD 11300 - Basic Drawing
- AD 12500 - Introduction To Interior Design
- AD 20000 - Beginning Painting
- AD 20500 - Design III
- AD 20600 - Studio In Visual Communication Design
- AD 21300 - Life Drawing I
- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400

- AD 23000 - Interior Design I
- AD 23500 - Materials and Processes II
- AD 24200 - Ceramics I
- AD 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 25500 - Art Appreciation
- AD 26200 - Jewelry And Metalwork I
- AD 26500 - Relief Printmaking
- AD 26600 - Silkscreen Printmaking
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31600 - Seminar On Ideas In Industrial Design I: Design And Society
- AD 33000 - Interior Design III
- AD 33200 - Visual Communication Design I
- AD 33300 - Photo Silk Screen
- AD 34200 - Ceramics II
- AD 35000 - Interior Design IV
- AD 36200 - Jewelry And Metalwork
- AD 36300 - Documentary Photography
- AD 36500 - Intermediate Painting
- AD 36600 - Visual Communication Design II
- AD 36800 - Etching And Intaglio Printmaking
- AD 36900 - Lithographic Printmaking
- AD 37000 - Woven Textiles
- AD 38000 - Baroque Art
- AD 38100 - Fine Art Photographic Printmaking And Artist's Book
- AD 38200 - A Global History Of Art, Eighteenth-Nineteenth Centuries
- AD 38300 - Modern Art
- AD 38400 - Contemporary Art
- AD 38500 - History Of Interior Design
- AD 39100 - History Of Chinese Art
- AD 39500 - History Of Design
- AD 40000 - Advanced Painting
- AD 42100 - Advanced Studies In Photography And Related Media I
- AD 45400 - Modern Architecture
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 47000 - Advanced Studies In Textiles
- AD 49000 - Special Problems In Art And Design
- AFT 35100 - Air Force Leadership Studies I
- AFT 36100 - Air Force Leadership Studies II
- AFT 47100 - National Security Affairs I
- AFT 48100 - National Security Affairs II
- AGE 25000 - Economic Geography Of World Food And Resources

- AGEC 29600 - Selected Topics In Agricultural Economics
- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 41500 - Community And Resource Development
- AGEC 45000 - International Agricultural Trade
- ANTH 10000 - Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Introduction To Biological Anthropology And Human Evolution
- ANTH 20500 - Human Cultural Diversity
- ANTH 31200 - The Archaeology Of Ancient Egypt And The Near East
- ANTH 32000 - Ancient States And Empires
- ANTH 33500 - Primate Behavior
- ANTH 33600 - Human Variation
- ANTH 34100 - Culture And Personality
- ANTH 36800 - Sociolinguistic Study Of African American English
- ANTH 37900 - Native American Cultures
- ANTH 39000 - Individual Research In Anthropology
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 40400 - Comparative Social Organization
- ANTH 41400 - Introduction To Language And Culture
- ANTH 42500 - Archaeological Method And Theory
- ANTH 43600 - Human Evolution
- ANTH 46000 - Contemporary Issues In Agriculture
- ARAB 10100 - Standard Arabic Level I
- ARAB 10200 - Standard Arabic Level II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ASAM 24000 - Introduction To Asian American Studies
- ASAM 34000 - Contemporary Issues In Asian American Studies
- ASL 10100 - American Sign Language I
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- CHNS 10200 - Chinese Level II
- CHNS 10700 - Chinese For Heritage Students
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 23000 - Chinese Literature In Translation
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 28500 - Chinese Calligraphy
- CHNS 30100 - Chinese Level V

- CHNS 30200 - Chinese Level VI
- CHNS 31300 - Reading And Writing Practice
- CHNS 34100 - Chinese Literature I: Traditional Chinese Literature
- CHNS 34200 - Chinese Literature II: Modern Chinese Literature
- CHNS 49000 - Special Topics In Chinese Language
- CHNS 49300 - Special Topics In Chinese Literature
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CLCS 33700 - The Ancient Epic
- CLCS 33900 - Literature And The Law
- CLCS 38500 - Science, Medicine And Magic In The Ancient West
- COM 10200 - Introduction To Communication Theory
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Debating Public Issues
- COM 21200 - Approaches To The Study Of Interpersonal Communication
- COM 22400 - Communicating In The Global Workplace
- COM 25000 - Mass Communication And Society
- COM 25100 - Communication, Information, And Society
- COM 25600 - Introduction To Advertising
- COM 30300 - Intercultural Communication
- COM 31200 - Rhetoric In The Western World
- COM 31400 - Advanced Presentational Speaking
- COM 31800 - Principles Of Persuasion
- COM 32000 - Small Group Communication
- COM 32400 - Introduction To Organizational Communication
- COM 32500 - Interviewing: Principles And Practice
- COM 32900 - History Of The Mass Media
- COM 33000 - Theories Of Mass Communication
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- COM 36800 - Sociolinguistic Study Of African American English
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37600 - Communication And Gender
- COM 38100 - Gender And Feminist Studies In Communication
- COM 41200 - Theories Of Human Interaction
- COM 41600 - United States Politics And The Media
- COM 43500 - Communication And Emerging Technologies
- COM 49100 - Special Topics In Communication
- CSR 34200 - Personal Finance
- DANC 10100 - Modern Dance Technique
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 14000 - Dance Improvisation
- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 24000 - Dance Composition
- DANC 25000 - Dance Appreciation

- DANC 30100 - Modern Dance Techniques III
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ECON 30100 - Managerial Economics
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 35500 - Comparative Analysis Of Economic Systems
- ECON 36100 - Antitrust And Regulation
- ECON 36500 - History Of Economic Thought
- ECON 37000 - International Trade
- ECON 37500 - United States Economic History
- ECON 38000 - Money And Banking
- ECON 38500 - Labor Economics
- ECON 42200 - Public Finance And Taxation
- ECON 45600 - Urban Economics
- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 47000 - Transportation Economics
- ECON 47100 - Behavioral Economics
- ENGL 22700 - Elements Of Linguistics
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Ecological Literature
- ENGL 23500 - Introduction To Drama
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- ENGL 25800 - Nobel Prize Winners In Literature
- ENGL 26200 - Greek And Roman Classics In Translation
- ENGL 26400 - The Bible As Literature
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D.
- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 27600 - Shakespeare On Film
- ENGL 27900 - The American Short Story In Print And Film
- ENGL 30400 - Advanced Composition
- ENGL 32700 - English Language I: History And Development
- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33300 - Renaissance English Literature
- ENGL 33500 - Restoration And Eighteenth-Century English Literature
- ENGL 33700 - Nineteenth-Century English Literature
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35800 - Black Drama

- ENGL 36000 - Gender And Literature
- ENGL 36500 - Literature And Imperialism
- ENGL 36600 - Postcolonial Literatures
- ENGL 36800 - Sociolinguistic Study Of African American English
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37900 - The Short Story
- ENGL 38100 - The British Novel
- ENGL 38200 - The American Novel
- ENGL 38600 - History Of Film To 1950
- ENGL 38700 - History Of Film Since 1950
- ENGL 40600 - Review Writing
- ENGL 40700 - Intermediate Poetry Writing
- ENGL 40900 - Intermediate Fiction Writing
- ENGL 41100 - Studies In Major Authors
- ENGL 41200 - Studies In Genre
- ENGL 41300 - Studies In Literature And History
- ENGL 41400 - Studies In Literature And Culture
- ENGL 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- ENGL 44400 - Milton
- ENGL 46000 - Studies In Women's Literature
- ENGL 46200 - The Bible As Literature: The Old Testament
- ENGL 46300 - The Bible As Literature: The New Testament
- ENGL 46600 - Cultural Encounters
- ENGL 47000 - Theories Of Rhetoric And Composition
- FR 10100 - French Level I
- FR 10200 - French Level II
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 21100 - Elementary French Conversation II
- FR 21200 - Intermediate French Conversation
- FR 23000 - French Literature In Translation
- FR 24100 - Introduction To The Study Of French Literature
- FR 28000 - Second-Year French: Special Topics
- FR 30100 - French Level V
- FR 30200 - French Level VI
- FR 33000 - French Cinema
- FR 34100 - French Literature I: From The Middle Ages To The Enlightenment
- FR 34200 - French Literature II: The 19th And 20th Centuries
- FR 38000 - Special Topics In French Culture And Civilization
- FR 39400 - Special Topics In French Literature
- FR 39600 - Special Topics In French Language Science
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization

- GER 10100 - German Level I
- GER 10200 - German Level II
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 21100 - Elementary German Conversation II
- GER 21200 - Intermediate German Conversation
- GER 23000 - German Literature In Translation
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics
- GER 30100 - German Level V
- GER 30200 - German Level VI
- GER 32300 - German Level VI: Science And Engineering
- GER 33000 - German Cinema
- GER 34100 - German Literature I: From The Middle Ages To The 18th Century
- GER 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 40100 - German Level VII
- GER 40200 - German Level VIII
- GER 48000 - German Civilization
- GREK 10100 - Ancient Greek Level I
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 34400 - Greek Epic
- GREK 44600 - Greek Historians
- GREK 49000 - Directed Reading In Classical Greek
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 31100 - Child Development
- HDFS 32500 - Health And Health Care For Children And Families
- HDFS 33000 - Sexuality And Family Life
- HDFS 34100 - Working With Parents
- HEBR 10100 - Modern Hebrew Level I
- HEBR 10200 - Modern Hebrew II
- HEBR 20100 - Modern Hebrew Level III
- HEBR 20200 - Modern Hebrew Level IV
- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 10500 - Survey Of Global History
- HIST 15100 - American History To 1877
- HIST 15200 - United States Since 1877
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24100 - East Asia In The Modern World
- HIST 24300 - South Asian History And Civilizations
- HIST 24500 - Introduction To The Middle East History And Culture
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)

- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)
- HIST 30200 - Historical Topics
- HIST 30400 - America In The 1960s
- 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 32200 - Monarchy: Its Rise And Fall
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32600 - Popular Culture In Preindustrial Europe (1400-1800)
- 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 33300 - Science And Society In Western Civilization I
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34100 - History Of Africa South Of The Sahara
- HIST 34200 - Africa And The West
- HIST 34300 - Traditional Japan
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35500 - History Of American Military Affairs
- HIST 35600 - America In Vietnam
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 35900 - Gender In East Asian History
- HIST 36000 - Gender In Middle East History
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37100 - Society, Culture, And Rock And Roll
- HIST 37200 - History Of The American West
- HIST 37600 - History Of Indiana
- HIST 37700 - History And Culture Of Native America
- HIST 38300 - Recent American Constitutional History
- HIST 38700 - History Of The Space Age
- HIST 39100 - History Of Russian Popular Entertainment
- HIST 39200 - Caribbean History And Culture
- HIST 39500 - Junior Research Seminar
- HIST 39600 - The Afro-American To 1865
- HIST 40700 - Road To World War I: Europe 1870-1919
- HIST 40800 - Dictatorship And Democracy: Europe 1919-1945
- HIST 41200 - The Cultural History Of The Middle Ages
- HIST 42700 - History Of Spain And Portugal
- HIST 43900 - Communist China
- HIST 44100 - Africa In The Twentieth Century
- HIST 45000 - The English Landscape: Integrating History, Horticulture & Landscape Architect
- HIST 46100 - The Revolutionary Era, 1763 To 1800
- HIST 46900 - Black Civil Rights Movement
- HIST 47100 - History Of The Great Plains Indians

- HIST 47200 - History Of Mexico
- HIST 47300 - History Of The South
- HIST 47500 - Spanish Frontier In North America
- HIST 49200 - Seminar In Historical Topics
- HIST 59500 - The Holocaust And Genocide
- IDIS 49000 - Directed Reading in Interdisciplinary Studies
- ITAL 10100 - Italian Level I
- ITAL 10200 - Italian Level II
- ITAL 10500 - Accelerated Basic Italian
- ITAL 11200 - Elementary Italian Conversation
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 21100 - Italian Conversation III
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 23100 - Dante's Divine Comedy
- ITAL 30100 - Italian Level V
- ITAL 33000 - The Italian Cinema
- ITAL 33500 - Italian-American Cinema
- ITAL 34100 - Italian Literature I: From The Middle Ages To The Enlightenment
- ITAL 34200 - Italian Literature II: From Romanticism To The Present
- ITAL 39400 - Special Topics In Italian Literature
- JPNS 10100 - Japanese Level I
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- JPNS 23000 - Japanese Literature In Translation
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization
- JPNS 30100 - Japanese Level V
- JPNS 30200 - Japanese Level VI
- JPNS 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 36100 - Elementary Survey Of Japanese Linguistics
- JPNS 36200 - The Structure Of Japanese II: Advanced Sentence Structure And Applied Linguistics
- JPNS 36300 - Relationship Of Japanese Language And Society
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48000 - Japanese Civilization
- JPNS 49000 - Special Topics In Japanese Language
- LATN 10100 - Latin Level I
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy
- LATN 34600 - Roman Rhetoric
- LATN 44200 - Roman Lyric Poetry
- LATN 44300 - Roman Satire
- LATN 44400 - Roman Philosophers

- LATN 44500 - Roman Encyclopedists
- LATN 44600 - Roman Historians
- LATN 49000 - Directed Reading In Latin
- LC 10100 - Special Topics In Foreign Languages I
- LC 10200 - Special Topics In Foreign Languages II
- LC 20100 - Special Topics In Foreign Languages III
- LC 20200 - Special Topics In Foreign Languages IV
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 23300 - Love, Sex, And Gender In Western European Literature
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation
- LC 33100 - Comparative Literature In Translation
- LC 36100 - Sound And Form In Language
- LC 36800 - Sociolinguistic Study Of African American English
- LC 37100 - Phonetics Of Foreign Languages
- LC 49000 - Special Topics In Foreign Languages And Literatures
- MUS 25000 - Music Appreciation
- MUS 36100 - Music Theory I
- MUS 36200 - Music Theory II
- MUS 36300 - Music Theory III
- MUS 37400 - Contemporary Music
- MUS 37500 - Selected Topics In Music
- MUS 37800 - Jazz History
- MUS 49000 - Guided Reading In Music
- NS 21400 - Fundamentals Of Leadership
- NS 41300 - Naval Leadership, Management, And Ethics
- PHIL 11000 - The Big Questions: Introduction to Philosophy
- PHIL 11100 - Introduction To Ethics
- PHIL 11400 - Global Moral Issues
- PHIL 12000 - Critical Thinking
- PHIL 15000 - Principles Of Logic
- PHIL 20600 - Introduction To Philosophy Of Religion
- PHIL 21900 - Philosophy And The Meaning Of Life
- PHIL 22100 - Introduction To Philosophy Of Science
- PHIL 22500 - Philosophy And Gender
- PHIL 24000 - Social And Political Philosophy
- PHIL 24200 - Philosophy, Culture, And The African American Experience
- PHIL 26000 - Philosophy And Law
- PHIL 27000 - Biomedical Ethics
- PHIL 27500 - The Philosophy Of Art
- PHIL 28000 - Ethics And Animals
- PHIL 29000 - Environmental Ethics
- PHIL 29300 - Selected Topics In Philosophy
- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PHIL 30400 - Nineteenth-Century Philosophy
- PHIL 30600 - Twentieth-Century Philosophy

- PHIL 31900 - Classic And Contemporary Marxism
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40600 - Intermediate Philosophy Of Religion
- PHIL 41100 - Modern Ethical Theories
- PHIL 42100 - Philosophy Of Science
- PHIL 42500 - Metaphysics
- PHIL 43000 - Modern Religious Thought
- PHIL 43100 - Contemporary Religious Thought
- PHIL 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- PHIL 49000 - Advanced Topics In Philosophy
- POL 10100 - American Government And Politics
- POL 12000 - Introduction To Public Policy And Public Administration
- POL 13000 - Introduction To International Relations
- POL 14100 - Governments Of The World
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy
- POL 23000 - Introduction To The Study Of Peace
- POL 23100 - Introduction To United States Foreign Policy
- POL 23200 - Contemporary Crises In International Relations
- POL 23500 - International Relations Among Rich And Poor Nations
- POL 23700 - Modern Weapons And International Relations
- POL 30000 - Introduction To Political Analysis
- POL 31400 - The President And Policy Process
- POL 32300 - Comparative Environmental Policy
- POL 32600 - Black Political Participation In America
- POL 32700 - Global Green Politics
- POL 34500 - West European Democracies In The Post-Industrial Era
- POL 34700 - Introduction To Latin American Politics
- POL 34800 - East Asian Politics
- POL 35000 - Foundations Of Western Political Theory: From The Renaissance To Marx
- POL 35100 - Foundations Of Western Political Theory: From Plato To The Reformation
- POL 35200 - Selected Topics In Political Theory
- POL 35300 - Current Political Ideologies
- POL 36000 - Women And The Law
- POL 37000 - Introduction To Comparative State Politics
- POL 37300 - Campaigns And Elections
- POL 41000 - Political Parties And Politics
- POL 41100 - Congress: Structure And Functioning
- POL 41300 - The Human Basis Of Politics
- POL 41500 - US Politics And The Media
- POL 42300 - International Environmental Policy
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43100 - Selected Problems In International Law

- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43400 - United States Foreign Policy, Central America And The Caribbean
- POL 43500 - International Law
- POL 43900 - United States Foreign Policy Making
- POL 45300 - Marxism And Its Critics
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- POL 49300 - Interdisciplinary Undergraduate Seminar
- PSY 12000 - Elementary Psychology
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 23500 - Child Psychology
- PSY 23900 - The Psychology Of Women
- PSY 24000 - Introduction To Social Psychology
- PSY 25100 - Health Psychology
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 33500 - Stereotyping And Prejudice
- PSY 33600 - Issues In Developmental Psychology
- PSY 33700 - Social Cognition
- PSY 35000 - Abnormal Psychology
- PSY 36100 - Human Development I: Infancy And Childhood
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 42600 - Language Development
- PSY 42800 - Drugs And Behavior
- PSY 44300 - Aggression And Violence
- PSY 44400 - Human Sexual Behavior
- PSY 46400 - Research Ethics In Psychological Sciences
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PTGS 10100 - Portuguese Level I
- PTGS 10200 - Portuguese Level II
- PTGS 10500 - Accelerated Portuguese
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- RUSS 10100 - Russian Level I
- RUSS 10200 - Russian Level II
- RUSS 11100 - Conversation Supplement To Russian Level I
- RUSS 11200 - Conversation Supplement To Russian Level II
- RUSS 20100 - Russian Level III
- RUSS 20200 - Russian Level IV
- RUSS 21100 - Conversation Supplement To Russian Level III

- RUSS 21200 - Conversation Supplement To Russian Level IV
- RUSS 30100 - Russian Level V
- RUSS 30200 - Russian Level VI
- RUSS 33000 - Russian And East European Cinema
- RUSS 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 36100 - The Structure Of Russian I: Sound System And Sentence Structure
- RUSS 36200 - The Structure Of Russian II: Wordforms And Word Formation
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 48000 - Russian Civilization
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 22700 - Elements Of Linguistics
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 31000 - Racial And Ethnic Diversity
- SOC 31200 - American Society
- SOC 31600 - Industry And Society
- SOC 32400 - Criminology
- SOC 32800 - Criminal Justice
- SOC 33400 - Urban Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Introduction To The Sociology Of Developing Nations
- SOC 34000 - General Social Psychology
- SOC 34100 - Culture And Personality
- SOC 35000 - Social Psychology Of Marriage
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 37400 - Medical Sociology
- SOC 39100 - Selected Topics In Sociology
- SOC 40200 - Sociological Theory
- SOC 41100 - Social Inequality
- CLCS 23500 - Introduction To Classical Mythology
- SOC 42100 - Juvenile Delinquency
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 45000 - Gender Roles In Modern Society
- SOC 45400 - Family Violence
- SOC 49300 - Interdisciplinary Undergraduate Seminar
- SPAN 10100 - Spanish Level I
- SPAN 10200 - Spanish Level II
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 21100 - Elementary Spanish Conversation II

- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation
- SPAN 24100 - Introduction To The Study Of Hispanic Literature
- SPAN 28000 - Second-Year Spanish: Special Topics
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 34100 - Hispanic Literature I: Poetry And Drama
- SPAN 34200 - Hispanic Literature II: Prose
- SPAN 36100 - The Structure Of Spanish I: Phonetics And Phonology
- SPAN 36200 - The Structure Of Spanish II: Morphology, Lexicology, And Syntax
- SPAN 40100 - Spanish Level VII
- SPAN 40200 - Spanish Level VIII
- SPAN 48000 - Spanish Civilization
- SPAN 48100 - Spanish Culture
- SPAN 48200 - Latin American Civilization
- THTR 13300 - Survey Of Acting
- THTR 20100 - Theatre Appreciation
- THTR 21300 - Voice For The Actor
- THTR 23300 - Acting I: Acting Technique
- THTR 32300 - Acting: Movement For The Actor
- THTR 33300 - Acting II: Scene Study
- THTR 33400 - Acting III: Acting For The Camera
- THTR 33600 - Rehearsal And Performance II
- THTR 38000 - History Of Theatre I
- THTR 43300 - Acting IV: Acting Shakespeare
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction

School of Mechanical Engineering

Overview

Mechanical Engineering is, simply, applying engineering principles to machines that have movement. If you think that sounds all-encompassing, well, you're right. Mechanical Engineering is the broadest of all Engineering majors, and their students can do just about anything, because they have a broad understanding of the principles of physics, design, thermodynamics, and control systems.

In the job world, you can take these skills to almost any industry. Many Mechanical Engineering students end up in the automotive or manufacturing industries, but many also pursue biotech, law, renewable energy, electronics, or any number of emerging industries. NASA loves Purdue students, and many mechanical engineers find places in the aerospace and defense industries. And some ME graduates don't go into engineering at all, but use their problem-solving skills to start a business, or go into sales or management. The foundational know-how of Mechanical Engineering will serve you, wherever in the world you choose to go.

Faculty

Mechanical Engineering has more than 80 faculty members, pursuing research in numerous fields. Are you interested in doing research as an undergrad? Contact a faculty member whose research interests you.

Graduate School

Interested in Graduate School? Learn more about the opportunities for you.

Contact Information

ME Undergraduate Office

Mechanical Engineering Building, Room 2008

585 Purdue Mall

West Lafayette, IN 47907-2088

Phone: (765) 494-5689

Fax: (765) 494-0051

Email: meundergrad@purdue.edu

Baccalaureate

Mechanical Engineering, BSME

About the Program

The Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

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 achieve 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:

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

The Honors program utilizes the technical, general education and 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.

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 Summer Module 1 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 summer 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 can register to take the FE exam at the West Lafayette campus in their senior year prior to graduation. Announcements appear periodically throughout the semester to alert students to this opportunity. The FE exam can be taken daily at Purdue in the months of January/February, April/May, July/August, and October/November. To aid seniors in their preparation for the exam, Chi Epsilon, the Civil Engineering Honor Society organizes annual faculty-taught review sessions on key topics covered on the FE exam. Also, a simple internet search of FE Review Sessions can provide valuable review information available at a student's convenience. 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 the Associate Head of 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 Summer 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:

- Providing a seamless transition from the B.S.ME to the M.S.ME program.
- Participating in a directed project in their area of interest.
- Stimulating interest in graduate study and research/academic careers.
- 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.

Degree Requirements

128 Credits Required

Departmental/Program Major Courses (55 credits)

Mechanical Engineering Major Courses (37 credits)

All ME courses are critical courses.

- ME 20000 - Thermodynamics I ♦
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship ♦
- ME 27000 - Basic Mechanics I ♦
- ME 27400 - Basic Mechanics II ♦
- ME 29000 - Global Engineering Professional Seminar ♦
- ME 30900 - Fluid Mechanics ♦
- 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

Mechanical Engineering Electives (9 credits)

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

- ME Elective III - Credit Hours: 3.00

Note: Any ME 30000, 40000, 50000 Level Course

Includes any ME Course not used to fulfill Major Course requirements.

Technical Electives (9 credits)

Mechanical Engineering Tech Electives and World & Cultural Affairs

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

Other School/Department Course Requirements (52 credits)

[Click here for First-Year Engineering requirements.](#)

- 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 Electives (18 credits)

- Economics Selectives (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- World & Cultural Affairs (satisfies Human Cultures: Humanities for core) - Credit Hours: 3.00
- General Education-I - Credit Hours: 3.00
- General Education-II - Credit Hours: 3.00
- General Education-III - Credit Hours: 3.00
- General Education-IV - Credit Hours: 3.00

Supplemental Information

Mechanical Engineering General Education Supplemental Electives

Mechanical Engineering Tech Electives and World & Cultural Affairs

Elective (3 credits)

The primary exceptions that are not permitted for the elective are remedial courses and courses not intended for technical majors.

- Electives - Credit Hours: 3.00

University Core Requirements

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

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)

- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Mechanical Engineering Program Requirements

Fall 2nd Year

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

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 ♦
- Elective - 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 ♦
- Econ Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- ME 35200 - Machine Design I ♦
- ME 37500 - Measurement And Control Systems II ♦
- ME 31500 - Heat And Mass Transfer
- Gen Ed Elective I - Credit Hours: 3.00

- Gen Ed Elective II - Credit Hours: 3.00

17 Credits

Fall 4th Year

- ME 46300 - Engineering Design
- MSE 23000 - Structure And Properties Of Materials
- ME Elective I - Credit Hours: 3.00
- Technical Elective I - Credit Hours: 3.00
- World Culture Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- ME Elective II - Credit Hours: 3.00
- ME Elective III - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- Gen Ed Elective III - Credit Hours: 3.00
- Gen Ed Elective IV - Credit Hours: 3.00

18 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Science degree
- 2.0 ME Core GPA required for Bachelor of Science degree

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Engineering and Public Policy Minor

A minor in Engineering and Public Policy is available to students in the College of Engineering.

Requirements for the Minor (21 credits)

Required Courses (15 credits)

- 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

Additional Courses (6 credits)*

Public Policy (3 credits)

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

Technical (3 credits)

- 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 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 52400 - Legal Aspects In Engineering Practice
- ECE 59500 - Selected Topics In Electrical Engineering (Physics And Manufacturing Of Solar Cells)
- ME 49700 - Mechanical Engineering Projects (Energy In A Global Context)
- ME 59700 - Advanced Mechanical Engineering Projects I (Sustainable Energy Options And Analysis, Solar Energy, Bio-energy and Bio-fuels, Wind Energy and Turbines)
- NUCL 20000 - Introduction to Nuclear Engineering

Notes

- * All courses must be completed with a grade of "C" or better. A grade of "C- or lower" in any of the minor courses is not adequate.
- 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 <https://www.whitehouse.gov/get-involved/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.

Disclaimer

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

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Intellectual Property Law for Engineers Minor

A minor in Intellectual Property Law is available to students in the College of Engineering.

Requirements for the Minor (19 credits)

Required Courses (13 credits)

- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ME 49200 - Technology And Values or
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- ME 55400 - Intellectual Property For Engineers
- ENGL 42100 - Technical Writing
- POL 42800 - The Politics Of Regulation **

Elective Courses (6 credits)

Law (3 credits)

- POL 10100 - American Government And Politics
- POL 42800 - The Politics Of Regulation (Recommended)
- POL 46100 - Constitutional Law I (Recommended)
- POL 46200 - Constitutional Law II

Technical (3 credits)

- ECE 38200 - Feedback System Analysis And Design
- ECE 48300 - Digital Control Systems Analysis And Design
- 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 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

Notes

- 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. Note: No more than one substitution from either of the above two categories is acceptable for the Intellectual Property Law Minor.
- Courses must be completed with a grade of "C" or better. A grade of "C- or lower" is not adequate to fulfill the minor.
 - * 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.
 - **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://www.law.indiana.edu/>) early in their academic program to discuss specific Schools of interest, the applications process, the interview process, and the admission exam (LSATS, etc.)

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Sustainable Engineering Minor

Requirements for the Minor (18 credits)

Required Courses (12 credits)

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

Public Policy - Choose One (3 credits)

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

Technical Courses - Choose One (3 credits)

Sustainable Energy Options

- ABE 58000 - Process Engineering Of Renewable Resources
- ABE 59100 - Special Topics Biomass Feedstock Systems Engineering ^
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering Advanced Solar Energy Conversion ^
- ECE 59500 - Selected Topics In Electrical Engineering Physics and Manufacturing of Solar Cells ^
- ME 59700 - Advanced Mechanical Engineering Projects I Course worth 3 credits each, with the following topics:
- ME 59700 Bio-energy and Bio-fuels ^
- ME 59700 Solar Energy ^
- ME 59700 Sustainable Energy Options and Analysis ^
- ME 59700 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 Sustainable Building Design Construction and Operation ^
- ME 59700 - Advanced Mechanical Engineering Projects I Sustainable Design and Manufacturing ^

Energy Utilization and Equipment

- ECET 58100 - Workshop In Electrical And Computer Engineering Technology
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel

Agricultural/Environmental Sustainability

- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- CE 59700 - Civil Engineering Projects Water Resources Sustainability ^

Energy Conversion and Storage

- NUCL 47000 - Fuel Cell Engineering
- NUCL 56300 - Direct Energy Conversion
- MSE 59700 - Selected Topics In Materials Engineering Materials and Devices for Solid State Energy Conversion
or
- ECE 59500 - Selected Topics In Electrical Engineering Materials and Devices for Solid State Energy Conversion

Notes

- * A grade of "C" or better is required in all of the courses. A grade of "C- or lower" in any of the minor courses is not adequate to fulfill the minor.
 - ^ This is a variable title course.
 - A Sustainable Engineering Minor is available to students in the College of Engineering.
 - 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.

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Mechanical Engineering General Education Supplemental Electives

Note: Introductory courses have an astrisk (), Upper Level Courses do not have an asterisk. Appropriate 500 level courses may also be approved by the student's advisor.*

Courses

- AAS 27100 - Introduction To African American Studies *
- AAS 27700 - African American Popular Culture *
- All 30000 level or above courses

- AD 10500 - Design I *
- AD 10600 - Design II
- AD 11300 - Basic Drawing *
- AD 11400 - Drawing II
- AD 11700 - Black And White Photography *
- AD 11900 - Introduction To Digital Color Imaging *
- AD 12500 - Introduction To Interior Design *
- AD 13000 - Interior Design Communication
- AD 14600 - Design Drawing I *
- AD 20000 - Beginning Painting
- AD 20500 - Design III
- AD 20600 - Studio In Visual Communication Design
- AD 21300 - Life Drawing I
- AD 21500 - Materials and Processes
- AD 22000 - Computers In Art *
- AD 22600 - History Of Art To 1400 *
- AD 22700 - History Of Art Since 1400 *
- AD 23000 - Interior Design I
- AD 23300 - Electronic Media Studio *
- AD 23500 - Materials and Processes II
- AD 23600 - Lighting Fundamentals For Photography *
- AD 24000 - Interior Drafting And Drawing
- AD 24200 - Ceramics I *
- AD 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 25100 - History Of Photography I *
- AD 25500 - Art Appreciation *
- AD 25600 - Presentation Techniques
- AD 26200 - Jewelry And Metalwork I *
- AD 26500 - Relief Printmaking *
- AD 26600 - Silkscreen Printmaking *
- AD 26700 - Digital Media I: Photography And Digital Imaging *
- AD 27000 - Constructed Textiles *
- AD 27100 - Dyed Textiles *

- AFT 23000 - The Evolution Of USAF Air And Space Power I *
- AFT 35100 - Air Force Leadership Studies I
- AFT 36100 - Air Force Leadership Studies II
- AFT 47100 - National Security Affairs I

- AGE 22000 - Economics Of Agricultural Markets

- AGEC 25000 - Economic Geography Of World Food And Resources *
- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 45000 - International Agricultural Trade

- AMST 20100 - Interpreting America
- AMST 30100 - Perspectives On America

- ANTH 10000 - Introduction To Anthropology * *
- ANTH 20100 - Introduction To Archaeology And World Prehistory *
- ANTH 20300 - Biological Bases Of Human Social Behavior *
- ANTH 20400 - Introduction To Biological Anthropology And Human Evolution *
- ANTH 20500 - Human Cultural Diversity *
- ANTH 21000 - Technology And Culture *
- ANTH 21200 - Culture, Food And Health *
- ANTH 23000 - Gender Across Cultures *
- ANTH 23500 - The Great Apes *
- ANTH 28200 - Introduction To LGBT Studies *
- All 30000 level or above courses

- ARAB 10100 - Standard Arabic Level I *
- ARAB 10200 - Standard Arabic Level II
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 11200 - Elementary Standard Arabic Conversation II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture *
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ARAB 33400 - North African Literature And Culture

- ASL 10100 - American Sign Language I *
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- ASL 28000 - American Deaf Community: Language, Culture, And Society *

- CHNS 10100 - Chinese Level I *
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 28100 - Introduction To Chinese Food Culture

- CHNS 28500 - Chinese Calligraphy *
- All 30000 level or above courses

- CLCS 18100 - Classical World Civilizations *
- CLCS 23010 - Survey Of Greek Literature In Translation *
- CLCS 23100 - Survey Of Latin Literature (Cannot be used as Gen Ed if used for Written Communication Selective) *
- CLCS 23200 - Classical Roots Of English Words *
- CLCS 23300 - Comparative Mythology *
- CLCS 23400 - Medical And Scientific Terminology From Greek And Latin Roots *
- CLCS 23500 - Introduction To Classical Mythology *
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity (Cannot be used as Gen Ed if used for Written Communication Selective) *
- CLCS 23900 - The Comic Vision *
- CLCS 28000 - Topics In Classical Civilization *
- All 30000 level or above courses

- COM 10200 - Introduction To Communication Theory *
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Debating Public Issues
- COM 21200 - Approaches To The Study Of Interpersonal Communication
- COM 21700 - Science Writing And Presentation (Cannot be used as Gen Ed if used for Oral Communication Selective)
- COM 22400 - Communicating In The Global Workplace
- COM 25000 - Mass Communication And Society
- COM 25100 - Communication, Information, And Society
- COM 25300 - Introduction To Public Relations
- COM 25600 - Introduction To Advertising
- All 30000 level or above courses

- CSR 32700 - History Of Fashion
- CSR 33100 - Consumer Behavior
- CSR 34200 - Personal Finance

- DANC 10100 - Modern Dance Technique *
- DANC 10200 - Ballet I *
- DANC 10300 - Jazz Dance I *
- DANC 14000 - Dance Improvisation *
- DANC 14400 - Contact Improvisation *
- DANC 20100 - Modern Dance Technique II *
- DANC 20200 - Ballet II *
- DANC 20300 - Jazz Dance II *
- DANC 23000 - Biomechanics Of Dance, Movement and Strength *
- DANC 24000 - Dance Composition *
- DANC 25000 - Dance Appreciation *
- All 30000 level or above courses (note: most DANC courses are 1 or 2 credits)

- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society

- EAPS 30100 - Oil !
- EAPS 32000 - Physics Of Climate
- ECON 25100 - Microeconomics *
- ECON 25200 - Macroeconomics *
- All 30000 level or above courses EXCEPT ECON 45100, 46100
- EDPS 23500 - Learning And Motivation *
- EDPS 30000 - Student Leadership Development
- EDPS 31500 - Collaborative Leadership: Interpersonal Skills (Cannot be used as Gen Ed if used for Oral Communication Selective)
- EDPS 31600 - Collaborative Leadership: Cross-Cultural Settings
- EDPS 31700 - Collaborative Leadership: Mentoring
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 20300 - Introduction To Research For Professional Writers *
- ENGL 20500 - Introduction To Creative Writing
- ENGL 22700 - Elements Of Linguistics *
- ENGL 23000 - Great Narrative Works *
- ENGL 23100 - Introduction To Literature *
- ENGL 23200 - Thematic Studies In Literature *
- ENGL 23400 - Ecological Literature *
- ENGL 23500 - Introduction To Drama *
- ENGL 23700 - Introduction To Poetry *
- ENGL 23800 - Introduction To Fiction *
- ENGL 24000 - British Literature Before 1789 *
- ENGL 24100 - British Literature After 1789 *
- ENGL 25000 - Great American Books *
- ENGL 25700 - Literature Of Black America *
- ENGL 25800 - Nobel Prize Winners In Literature *
- ENGL 26200 - Greek And Roman Classics In Translation *
- ENGL 26400 - The Bible As Literature *
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D. *
- ENGL 26700 - World Literature: From 1700 A.D. To The Present *
- ENGL 27600 - Shakespeare On Film *
- ENGL 27900 - The American Short Story In Print And Film *
- ENGL 28600 - The Movies
- All 30000 level or above courses EXCEPT ENGL 42100 (ENGL 42000 and ENGL 42100 cannot both be used to satisfy ME degree requirements)
- FR 10100 - French Level I *
- FR 10200 - French Level II
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 21200 - Intermediate French Conversation
- FR 24100 - Introduction To The Study Of French Literature

- All 30000 level or above courses
- GER 10100 - German Level I *
- GER 10200 - German Level II
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Scientific
- GER 22400 - German Level IV: Business German
- GER 23000 - German Literature In Translation *
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics *
- All 30000 level or above courses
- GREK 10100 - Ancient Greek Level I *
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- All 30000 level or above courses
- HDFS 20100 - Introduction To Family Processes *
- HDFS 21000 - Introduction To Human Development *
- All 30000 level or above courses
- HEBR 10100 - Modern Hebrew Level I *
- HEBR 10200 - Modern Hebrew II
- HEBR 12100 - Biblical Hebrew Level I *
- HEBR 12200 - Biblical Hebrew Level II
- HEBR 20100 - Modern Hebrew Level III
- HEBR 20200 - Modern Hebrew Level IV
- HEBR 22100 - Biblical Hebrew Level III
- HEBR 22200 - Biblical Hebrew Level IV
- HEBR 28400 - Ancient Near Eastern History And Culture *
- All 30000 level or above courses
- HIST 10300 - Introduction To The Medieval World *
- HIST 10400 - Introduction To The Modern World *
- HIST 10500 - Survey Of Global History *
- HIST 15100 - American History To 1877 *
- HIST 15200 - United States Since 1877 *
- HIST 20100 - Special Topics In History *
- HIST 21000 - The Making Of Modern Africa *
- HIST 22800 - English History To 1688 *
- HIST 22900 - English History Since 1688 *
- HIST 23800 - History Of Russia From Medieval Times To 1861 *
- HIST 23900 - History Of Russia From 1861 To The Present *
- HIST 24000 - East Asia And Its Historic Tradition *

- HIST 24100 - East Asia In The Modern World *
- 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 27100 - Introduction To Colonial Latin American History (1492-1810) *
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present) *
- All 30000 level or above courses

- HORT 30600 - History Of Horticulture

- ITAL 10100 - Italian Level I *
- ITAL 10200 - Italian Level II
- ITAL 10500 - Accelerated Basic Italian *
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 23100 - Dante's Divine Comedy *
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization *
- All 30000 level or above courses

- JPNS 10100 - Japanese Level I *
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization *
- All 30000 level or above courses

- JWST 33000 - Introduction To Jewish Studies

- LATN 10100 - Latin Level I *
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- All 30000 level or above courses

- LING 20100 - Introduction To Linguistics *

- MUS 25000 - Music Appreciation *
- MUS 26100 - Fundamentals Of Music *
- All 30000 level or above courses

- NS 21300 - Sea Power And Maritime Affairs *
- NS 21400 - Fundamentals Of Leadership *
- NS 41300 - Naval Leadership, Management, And Ethics
- NS 44000 - Amphibious Warfare And Leadership

- PHIL 11000 - The Big Questions: Introduction to Philosophy *

- PHIL 11100 - Introduction To Ethics *
- PHIL 11400 - Global Moral Issues *
- PHIL 12000 - Critical Thinking *
- PHIL 15000 - Principles Of Logic *
- PHIL 20600 - Introduction To Philosophy Of Religion *
- PHIL 20700 - Ethics For Technology, Engineering, And Design *
- PHIL 21900 - Philosophy And The Meaning Of Life *
- PHIL 22300 - Fate And Free Will *
- PHIL 22500 - Philosophy And Gender *
- PHIL 23000 - Religions Of The East *
- PHIL 23100 - Religions Of The West *
- PHIL 24000 - Social And Political Philosophy *
- PHIL 24200 - Philosophy, Culture, And The African American Experience *
- PHIL 26000 - Philosophy And Law * (Cannot be used as Gen Ed if used for Written Communication)
- PHIL 27000 - Biomedical Ethics *
- PHIL 27500 - The Philosophy Of Art *
- PHIL 28000 - Ethics And Animals *
- PHIL 29000 - Environmental Ethics *
- PHIL 29300 - Selected Topics In Philosophy *
- All 30000 level or above courses

- POL 10100 - American Government And Politics *
- POL 12000 - Introduction To Public Policy And Public Administration *
- POL 13000 - Introduction To International Relations *
- POL 14100 - Governments Of The World *
- POL 22200 - Women, Politics, And Public Policy *
- POL 22300 - Introduction To Environmental Policy *
- POL 22900 - Emerging Problems In Political Science *
- POL 23000 - Introduction To The Study Of Peace *
- POL 23100 - Introduction To United States Foreign Policy *
- POL 23500 - International Relations Among Rich And Poor Nations *
- POL 23700 - Modern Weapons And International Relations *
- All 30000 level or above courses

- PSY 12000 - Elementary Psychology *
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 20100 - Introduction To Statistics In Psychology
- PSY 22200 - Introduction To Behavioral Neuroscience
- PSY 23500 - Child Psychology
- PSY 23900 - The Psychology Of Women
- PSY 24000 - Introduction To Social Psychology
- PSY 24400 - Introduction To Human Sexuality
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 29200 - Topics In Psychology
- All 30000 level or above courses

- PTGS 10100 - Portuguese Level I
- PTGS 10200 - Portuguese Level II *

- PTGS 10500 - Accelerated Portuguese *
 - PTGS 20100 - Portuguese Level III *
 - PTGS 20200 - Portuguese Level IV *
 - All 30000 level or above courses
-
- REL 20000 - Introduction To The Study Of Religion *
 - REL 20100 - Interpretation Of The New Testament *
 - REL 20300 - Theology Of Paul *
 - REL 20400 - Introduction To Christian Theology *
 - REL 23000 - Religions Of The East *
 - REL 23100 - Religions Of The West *
 - All 30000 level or above courses
-
- RUSS 10100 - Russian Level I *
 - RUSS 10200 - Russian Level II
 - RUSS 11100 - Conversation Supplement To Russian Level I *
 - RUSS 11200 - Conversation Supplement To Russian Level II
 - RUSS 20100 - Russian Level III
 - RUSS 20200 - Russian Level IV
 - RUSS 21100 - Conversation Supplement To Russian Level III
 - RUSS 21200 - Conversation Supplement To Russian Level IV
 - All 30000 level or above courses
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- SOC 10000 - Introductory Sociology *
 - SOC 22000 - Social Problems *
 - SOC 27500 - Sociology Of Aging And The Life Course *
 - All 30000 level or above courses
-
- SPAN 10100 - Spanish Level I *
 - SPAN 10200 - Spanish Level II
 - SPAN 11200 - Elementary Spanish Conversation *
 - SPAN 20100 - Spanish Level III
 - SPAN 20200 - Spanish Level IV
 - SPAN 21200 - Intermediate Spanish Conversation
 - SPAN 23500 - Spanish American Literature In Translation
 - SPAN 24100 - Introduction To The Study Of Hispanic Literature
 - SPAN 28000 - Second-Year Spanish: Special Topics
 - All 30000 level or above courses (SPAN 330 cannot be used as Gen Ed if used for Written Communication Selective)
-
- THTR 13300 - Survey Of Acting *
 - THTR 15001 - Introduction To Drafting *
 - THTR 15002 - Introduction To Scenery Construction Tools And Techniques *
 - THTR 15003 - Introduction To Rigging For Theatre *
 - THTR 16000 - Introduction To Scene Design And Technology *
 - THTR 16100 - Introduction To Costume Design And Technology *
 - THTR 16200 - Introduction To Light Design And Technology *
 - THTR 20100 - Theatre Appreciation *
 - THTR 21300 - Voice For The Actor *

- THTR 23300 - Acting I: Acting Technique *
 - THTR 23500 - Vocal/Physical Preparation *
 - THTR 25300 - Survey Of Audio Production *
 - THTR 25400 - Drafting For Theatre *
 - THTR 25600 - Stage Make-Up *
 - THTR 26300 - Introduction To Sound Studios *
 - THTR 27000 - Theatrical Materials And Techniques I *
 - THTR 29000 - Special Topics In Theatre *
 - All 30000 level or above courses
- TLI 15200 - Business Principles For Organizational Leadership *
 - TLI 21300 - Project Management *
 - TLI 25300 - Principles Of Technology Strategy *
 - TLI 25400 - Leading Change In Technology Organizations
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction *
 - WGSS 28100 - Selected Topics In Women's, Gender, And Sexuality Studies *
 - WGSS 28200 - Introduction To LGBT Studies *
 - All 30000 level or above courses

Mechanical Engineering Tech Electives and World & Cultural Affairs

Technical Electives in the Mechanical Engineering Curriculum

- AAE 25100 - Introduction To Aerospace Design
- AAE 30100 - Signal Analysis For Aerospace Engineering
- AAE 33400 - Aerodynamics
- AAE 33800 - Thermal Sciences
- AAE 33900 - Aerospace Propulsion
- AAE 34000 - Dynamics And Vibrations
- AAE 35103 - Aerospace Systems Design
- AAE 35200 - Structural Analysis I
- AAE 36100 - Introduction To Random Variables In Engineering
- AAE 36400 - Control System Analysis
- AAE 41200 - Introduction To Computational Fluid Dynamics
- AAE 41600 - Viscous Flows
- AAE 42100 - Flight Dynamics And Control
- AAE 43900 - Rocket Propulsion
- AAE 45000 - Spacecraft Design
- AAE 45100 - Aircraft Design
- AAE 45300 - Matrix Methods In Aerospace Structures
- AAE 49000 - Special Problems In Aeronautical Engineering
- AAE 51200 - Computational Aerodynamics
- AAE 51400 - Intermediate Aerodynamics
- AAE 51500 - Rotorcraft Aerodynamics

- AAE 51900 - Hypersonic Aerothermodynamics
- AAE 52000 - Experimental Aerodynamics
- AAE 53200 - Orbit Mechanics
- AAE 53900 - Advanced Rocket Propulsion
- AAE 55000 - Multidisciplinary Design Optimization
- AAE 55300 - Elasticity In Aerospace Engineering
- AAE 55400 - Fatigue Of Structures And Materials
- AAE 55500 - Mechanics Of Composite Materials
- AAE 55600 - Aeroelasticity
- AAE 55800 - Finite Element Methods In Aerospace Structures
- AAE 56400 - Systems Analysis And Synthesis
- ABE 33000 - Design Of Machine Components
- ABE 33600 - All Terrain Vehicle Design
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- ABE 45000 - Finite Element Method In Design And Optimization
- ABE 46000 - Sensors And Process Control
- ABE 50100 - Welding Engineering
- ABE 54500 - Design Of Off-Highway Vehicles
- ABE 55500 - Biological And Food Processing Unit Operations
- ABE 55600 - Biological And Food Process Design
- ABE 58000 - Process Engineering Of Renewable Resources
- ASM 34500 - Power Units And Power Trains
- ASTR 36300 - The Solar System
- ASTR 36400 - Stars And Galaxies
- ASTR 37000 - Cosmology
- BCHM 30700 - Biochemistry
- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 20100 - Human Anatomy And Physiology
- BIOL 20200 - Human Anatomy And Physiology
- BIOL 20300 - Human Anatomy And Physiology
- BIOL 23000 - Biology Of The Living Cell
- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 30100 - Human Design: Anatomy And Physiology
- BIOL 30200 - Human Design: Anatomy And Physiology
- BIOL 32800 - Principles Of Physiology
- BIOL 58500 - Ecology
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- BME 20400 - Biomechanics Of Hard And Soft Tissues
- BME 54000 - Biomechanics
- BME 55100 - Tissue Engineering
- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 31100 - Architectural Engineering

- CE 32201 - Project Control And Life Cycle Execution Of Constructed Facilities
- CE 33300 - Civil Engineering Materials
- CE 34000 - Hydraulics
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CE 36100 - Transportation Engineering
- CE 37100 - Structural Analysis I
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 42400 - Human Resource Management In Construction
- CE 42600 - Construction Cost Control Concepts
- CE 44000 - Urban Hydraulics
- CE 44200 - Introduction To Hydrology
- CE 45600 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 46300 - Highway Transportation Characteristics
- CE 47000 - Structural Steel Design
- CE 47300 - Reinforced Concrete Design
- CE 47400 - Structural Analysis II
- CE 47900 - Design Of Building Components And Systems
- CE 49700 - Civil Engineering Projects
- CE 51300 - Lighting In Buildings
- CE 51401 - Building Controls
- CE 51501 - Building Energy Audits
- CE 52000 - Construction Project Control Systems
- CE 52400 - Legal Aspects In Engineering Practice
- CE 54000 - Open Channel Hydraulics
- CE 54200 - Hydrology
- CE 55700 - Air Quality Management
- CE 56000 - Public Mass Transportation
- CE 56300 - Airport Design
- CE 57000 - Advanced Structural Mechanics
- CE 57300 - Structural Dynamics
- CE 59500 - Finite Elements In Elasticity
- CHE 20500 - Chemical Engineering Calculations
- CHE 46100 - Biomedical Engineering
- CHM 25500 - Organic Chemistry
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26100 - Organic Chemistry
- CHM 26200 - Organic Chemistry
- CHM 26505 - Organic Chemistry
- CHM 26605 - Organic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- CS 24000 - Programming In C
- CS 25000 - Computer Architecture

- CS 25100 - Data Structures And Algorithms
- CS 25200 - Systems Programming
- CS 30700 - Software Engineering I
- CS 31400 - Numerical Methods
- CS 33400 - Fundamentals Of Computer Graphics
- CS 34800 - Information Systems
- CS 35200 - Compilers: Principles And Practice
- CS 35400 - Operating Systems
- CS 35500 - Introduction To Cryptography
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 40800 - Software Testing
- CS 44800 - Introduction To Relational Database Systems
- CS 47100 - Introduction to Artificial Intelligence
- CS 51400 - Numerical Analysis
- CS 51500 - Numerical Linear Algebra
- CS 56500 - Programming Languages
- EAPS 40300 - Physical Oceanography
- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 42300 - Atmospheric Dynamics II
- ECE 20200 - Linear Circuit Analysis II
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 30500 - Semiconductor Devices
- ECE 31100 - Electric And Magnetic Fields
- ECE 32100 - Electromechanical Motion Devices
- ECE 38200 - Feedback System Analysis And Design
- ECE 42300 - Electromechanical Motion Control
- ECE 43200 - Elements Of Power System Engineering
- ECE 43300 - Power Electronics
- ECE 48300 - Digital Control Systems Analysis And Design
- ECE 53200 - Computational Methods For Power System Analysis
- ECE 56200 - Introduction To Data Management
- ECE 56900 - Introduction To Robotic Systems
- ECON 45100 - Game Theory (May not be used for general education elective credit)
- ECON 46100 - Industrial Organization
- EEE 49500 - Experimental Course (Must have approval from Undergraduate Office prior to registering for course)
- EEE 59500 - Environmental And Ecological Engineering Projects (Must have approval from Undergraduate Office prior to registering for course)
- ENGL 42100 - Technical Writing (May not be used for general education elective credit)
- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS
- EPCS 40100 - Senior Participation In EPICS
- EPCS 40200 - Senior Participation In EPICS

- GEP 30000 - Global Design Team III
- GEP 40000 - Global Design Team IV
- HSCI 31200 - Radiation Science Fundamentals
- IE 33500 - Operations Research - Optimization
- IE 34300 - Engineering Economics
- IE 37000 - Manufacturing Processes I (IE 37000 and ME 36300 cannot both be taken for Technical Elective Credit)
- IE 38300 - Integrated Production Systems I
- IE 47000 - Manufacturing Processes II
- IE 49000 - Special Topics In Industrial Engineering (Must have approval from Undergraduate Office prior to registering for course)
- IE 53000 - Quality Control
- IE 53500 - Linear Programming
- IE 53700 - Discrete Optimization Models And Algorithms
- IE 55600 - Job Design
- IE 55800 - Safety Engineering
- IE 55900 - Cognitive Engineering Of Interactive Software
- IE 57000 - Manufacturing Process Engineering
- IE 57400 - Industrial Robotics And Flexible Assembly
- IE 57700 - Human Factors In Engineering
- MA 30100 - An Introduction To Proof Through Real Analysis
- MA 34100 - Foundations Of Analysis
- MA 35100 - Elementary Linear Algebra
- MA 36200 - Topics In Vector Calculus
- MA 36600 - Ordinary Differential Equations
- MA 37500 - Introduction To Discrete Mathematics
- MA 41600 - Probability
- MA 42100 - Linear Programming And Optimization Techniques
- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Honors Real Analysis I
- MA 44200 - Honors Real Analysis II
- MA 45000 - Algebra Honors
- MA 46000 - Geometry
- MA 46200 - Elementary Differential Geometry
- MA 51000 - Vector Calculus
- MA 51100 - Linear Algebra With Applications
- MA 52000 - Boundary Value Problems Of Differential Equations
- MA 52300 - Introduction To Partial Differential Equations
- MA 52700 - Advanced Mathematics For Engineers And Physicists I
- ME 36300 - Principles And Practices Of Manufacturing Processes (IE 37000 and ME 36300 cannot both be taken for Technical Elective Credit)
- ME 41300 - Noise Control
- ME 43000 - Power Engineering
- ME 43300 - Principles Of Turbomachinery
- ME 43400 - Gas Turbines For Power And Propulsion
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel
- ME 44400 - Computer-Aided Design And Prototyping
- ME 45500 - Vehicle Design And Fabrication

- ME 48900 - Introduction To Finite Element Analysis
- ME 49200 - Technology And Values
- ME 49700 - Mechanical Engineering Projects (Must have approval from Undergraduate Office prior to registering for course)
- ME 49800 - Research In Mechanical Engineering I
- ME 49900 - Research In Mechanical Engineering II
- ME 50000 - Advanced Thermodynamics
- ME 50100 - Statistical Thermodynamics
- ME 50300 - Micro-And-Nano-Scale Energy Transfer Processes
- ME 50500 - Intermediate Heat Transfer
- ME 50600 - Two-Phase Flow And Heat Transfer
- ME 50700 - Laser Processing
- ME 50800 - Heat Trans In Biological Systems
- ME 50900 - Intermediate Fluid Mechanics
- ME 51000 - Gas Dynamics
- ME 51300 - Engineering Acoustics
- ME 51400 - Fundamentals Of Wind Energy
- ME 51700 - Micro/Nanoscale Physical Processes
- ME 51800 - Analysis Of Thermal Systems
- ME 52200 - Indoor Environmental Analysis And Design
- ME 52500 - Combustion
- ME 52600 - Spray Applications And Theory
- ME 53300 - Turbomachinery II
- ME 53800 - Air Breathing Propulsion
- ME 54000 - Internal Combustion Engines
- ME 55300 - Product And Process Design
- ME 55400 - Intellectual Property For Engineers
- ME 55600 - Lubrication, Friction & Wear
- ME 55700 - Design For Manufacturability
- ME 55900 - Micromechanics Of Materials
- ME 56200 - Advanced Dynamics
- ME 56300 - Mechanical Vibrations
- ME 56500 - Vehicle Dynamics
- ME 57000 - Machine 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 57700 - Human Motion Kinetics
- ME 57800 - Digital Control
- ME 57900 - Fourier Methods In Digital Signal Processing
- ME 58000 - Nonlinear Engineering Systems
- ME 58100 - Numerical Methods In Mechanical Engineering
- ME 58400 - System Identification
- ME 58600 - Microprocessors In Electromechanical Systems
- ME 58700 - Engineering Optics
- ME 58800 - Mechatronics - Integrated Design Of Electro-Mechanical Systems
- ME 59200 - Fundamentals Of Particle Image Velocimetry

- ME 59700 - Advanced Mechanical Engineering Projects I (Must have approval from Undergraduate Office prior to registering for course)
- MFET 30000 - Applications Of Automation In Manufacturing
- MGMT 20100 - Management Accounting I
- MGMT 30400 - Introduction To Financial Management
- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science
- MGMT 31000 - Financial Management
- MGMT 32300 - Principles Of Marketing
- MGMT 32400 - Marketing Management
- MGMT 35000 - Intermediate Accounting I
- MGMT 35100 - Intermediate Accounting II
- MGMT 35200 - Strategic Management
- MGMT 36100 - Operations Management
- MGMT 38200 - Management Information Systems
- MGMT 44301 - Management Of Human Resources
- MGMT 44430 - Staffing: Talent Acquisition
- MGMT 44431 - Compensation: Total Rewards
- MGMT 45500 - Legal Background For Business I
- MGMT 45600 - Legal Foundations For Business II
- MGMT 48800 - Data-Driven Decisions In Digital Markets
- MSE 25000 - Physical Properties In Engineering Systems
- MSE 26000 - Thermodynamics Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 33000 - Processing And Properties Of Materials
- MSE 33500 - Materials Characterization Laboratory
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 38200 - Mechanical Response Of Materials
- NS 21200 - Naval Weapons Systems
- NS 35000 - Naval Ship Systems
- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 31000 - Introduction To Neutron Physics
- NUCL 32000 - Introduction To Materials For Nuclear Applications
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion
- NUCL 47000 - Fuel Cell Engineering
- NUCL 50100 - Nuclear Engineering Principles
- NUCL 50300 - Radioactive Waste Management
- NUCL 50400 - Nuclear Engineering Experiments
- NUCL 51000 - Nuclear Reactor Theory I
- NUCL 56000 - Introduction To Fusion Technology
- OBHR 33000 - Introduction To Organizational Behavior
- PHYS 31000 - Intermediate Mechanics
- PHYS 32200 - Intermediate Optics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 34200 - Modern Physics
- PHYS 34400 - Modern Physics

- PHYS 36000 - Quantum Mechanics
- PHYS 42200 - Waves And Oscillations
- PHYS 56000 - Stellar Evolution
- PHYS 51500 - Thermal And Statistical Physics
- STAT 35000 - Introduction To Statistics
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory
- STAT 51100 - Statistical Methods
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments
- SYS 30000 - It's A Complex World - Addressing Global Challenges
- SYS 35000 - Systems Theories And Approaches

World and Cultural Affairs Elective in the Mechanical Engineering Curriculum

- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- ARAB 10100 - Standard Arabic Level I
- ARAB 10200 - Standard Arabic Level II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 28000 - Arabic Culture
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ASL 10100 - American Sign Language I
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- CHNS 10100 - Chinese Level I
- CHNS 10200 - Chinese Level II
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- CHNS 33000 - Introduction To Chinese Cinema
- CHNS 40100 - Chinese Level VII
- CHNS 40200 - Chinese Level VIII
- CLCS 23010 - Survey Of Greek Literature In Translation
- CLCS 23100 - Survey Of Latin Literature
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D
- CMPL 26700 - World Literature: From 1700 A D To The Present
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 27600 - Shakespeare On Film

- ENGL 38100 - The British Novel
- FR 10100 - French Level I
- FR 10200 - French Level II
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 30100 - French Level V
- FR 30200 - French Level VI
- FR 33000 - French Cinema
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- GER 10100 - German Level I
- GER 10200 - German Level II
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 23000 - German Literature In Translation
- GER 30100 - German Level V
- GER 30200 - German Level VI
- GER 33000 - German Cinema
- GER 40100 - German Level VII
- GER 40200 - German Level VIII
- GREK 10100 - Ancient Greek Level I
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- HEBR 10100 - Modern Hebrew Level I
- HEBR 10200 - Modern Hebrew II
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 12200 - Biblical Hebrew Level II
- HEBR 20100 - Modern Hebrew Level III
- HEBR 20200 - Modern Hebrew Level IV
- HEBR 22100 - Biblical Hebrew Level III
- HEBR 22200 - Biblical Hebrew Level IV
- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 10500 - Survey Of Global History
- HIST 21000 - The Making Of Modern Africa
- HIST 23800 - History Of Russia From Medieval Times To 1861
- HIST 23900 - History Of Russia From 1861 To The Present
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24100 - East Asia In The Modern World
- 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 25000 - United States Relations With The Middle East And North Africa
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 32300 - German History

- HIST 32400 - Modern France
- HIST 32900 - History Of Women In Modern Europe
- HIST 34000 - Modern China
- HIST 34100 - History Of Africa South Of The Sahara
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34901 - The First World War
- HIST 35100 - The Second World War
- HIST 35900 - Gender In East Asian History
- HIST 37700 - History And Culture Of Native America
- HIST 39600 - The Afro-American To 1865
- ITAL 10100 - Italian Level I
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 28000 - Italian Culture And Civilization
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- ITAL 30100 - Italian Level V
- ITAL 30200 - Italian Level VI
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- JPNS 10100 - Japanese Level I
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- JPNS 30100 - Japanese Level V
- JPNS 30200 - Japanese Level VI
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JWST 33000 - Introduction To Jewish Studies
- LATN 10100 - Latin Level I
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 34300 - Roman Oratory
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy
- LATN 34600 - Roman Rhetoric
- LATN 34700 - Roman Comedy
- LATN 44200 - Roman Lyric Poetry
- LATN 44400 - Roman Philosophers
- LATN 44500 - Roman Encyclopedists
- LATN 44600 - Roman Historians
- LC 23900 - Women Writers In Translation
- LC 33300 - The Middle Ages On Film
- PHIL 11400 - Global Moral Issues
- PHIL 23000 - Religions Of The East
- PHIL 23100 - Religions Of The West

- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PTGS 10100 - Portuguese Level I
- PTGS 10200 - Portuguese Level II
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- RUSS 10100 - Russian Level I
- RUSS 10200 - Russian Level II
- RUSS 20100 - Russian Level III
- RUSS 20200 - Russian Level IV
- RUSS 30100 - Russian Level V
- RUSS 30200 - Russian Level VI
- RUSS 33000 - Russian And East European Cinema
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- SPAN 10100 - Spanish Level I
- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 23500 - Spanish American Literature In Translation
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 30500 - Spanish For Heritage Speakers
- SPAN 30801 - Advanced Spanish For Heritage Speakers
- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 40100 - Spanish Level VII
- SPAN 40200 - Spanish Level VIII

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.

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. Students in the undergraduate program have an opportunity to work with the reactor in their courses.

Faculty

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

Contact Information

Student Services Office:

School of Nuclear Engineering

Purdue University
400 Central Drive, Room 132G
West Lafayette, IN 47907-2017
Phone: (765) 494-5749
Fax: (765) 494-9570

Email regarding academic programs: nuclss@purdue.edu

General Contact Information:

School of Nuclear Engineering

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Graduate Information

For Graduate Information please see Nuclear Engineering Graduate Program Information.

Baccalaureate

Nuclear Engineering, BSNE

About the Program

The Nuclear Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Nuclear Engineering

Degree Requirements

125 Credits Required

Nuclear Engineering Major Courses (41 credits)

Required Major 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
- 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

Other Departmental/Program Course Requirements (57 credits)

[Click here for First-Year Engineering requirements.](#)

For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

First Year Engineering Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ (*FYE Requirement #5*) - Credit Hours: 4.00
- ENGR 13100 - Transforming Ideas To Innovation I ♦ (*FYE Requirement #1*) - Credit Hours: 2.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 5.00 or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*FYE Requirement #3*) - Credit Hours: 4.00
- Written Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for Core) or
- Oral Communication Selective ♦ (*FYE Requirement #8*) - Credit Hours:3.00 (Satisfies Oral Communication for Core)

13-14 Credits

Spring 1st Year

- ENGR 13200 - Transforming Ideas To Innovation II ♦ (*FYE Requirement #2*) - Credit Hours: 2.00
- PHYS 17200 - Modern Mechanics ♦ (*FYE Requirement #6*) - Credit Hours: 4.00
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 5.00 or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*FYE Requirement #4*) - Credit Hours: 4.00
- Oral Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00 (Satisfies Oral Communication for core) or
- Written Communication ♦ (*FYE Requirement #8*) - Credit Hours: 3.00-4.00 (Satisfies Written Communication for core)
- Science Selective ♦ (*FYE Requirement #7*) - Credit Hours: 3.00

16 Credits

Nuclear Engineering Program Requirements

Fall 2nd Year

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

16 Credits

Spring 2nd Year

- ME 27400 - Basic Mechanics II
- MA 26600 - Ordinary Differential Equations
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I
- NUCL 27300 - Mechanics Of Materials
- NUCL 29800 - Sophomore Seminar
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions
- General Elective II - Credit Hours: 3.00

17-18 Credits

Fall 3rd Year

- MA 26500 - Linear Algebra
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 32000 - Introduction To Materials For Nuclear Applications
- NUCL 32500 - Nuclear Materials Laboratory
- NUCL 35000 - Nuclear Thermal-Hydraulics I
- NUCL 39800 - Junior Seminar

- Technical Elective - Credit Hours: 3.00

18 Credits

Spring 3rd Year

- ECE 20100 - Linear Circuit Analysis I
- NUCL 31000 - Introduction To Neutron Physics
- NUCL 35100 - Nuclear Thermal-Hydraulics II
- NUCL 35500 - Nuclear Thermohydraulics Laboratory
- NUCL 39800 - Junior Seminar
- Math Elective (MA 30000+) - Credit Hours: 3.00

15 Credits

Fall 4th Year

- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 44900 - Senior Design Proposal
- NUCL 49800 - Senior Seminar
- NUCL 51000 - Nuclear Reactor Theory I
- Technical Elective - Credit Hours: 6.00

15 Credits

Spring 4th Year

- NUCL 45000 - Design In Nuclear Engineering
- NUCL 49800 - Senior Seminar
- Technical Elective - Credit Hours: 6.00
- General Elective III - Credit Hours: 3.00
- General Elective IV - Credit Hours: 3.00

15 Credits

Note

- Students must have a graduation index of 2.0

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Nuclear Engineering Minor

A minor in nuclear engineering is available to any student. Available areas of specialization include reactor physics, nuclear power systems, nuclear fusion, direct energy conversion, neural fuzzy approaches, reactor thermal-hydraulics, nuclear materials and radioactive waste management.

For more information, email the Nuclear Engineering Student Services Office.

Requirements for the Minor (12 credits)

Required Courses (6 credits)

- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 30000 - Nuclear Structure And Radiation Interactions

One group from the following (6 credits)

- NUCL 32000 - Introduction To Materials For Nuclear Applications and
- NUCL 42001 - Radiation Interaction With Materials And Applications
OR
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion and
- NUCL 56000 - Introduction To Fusion Technology
OR
- NUCL 31000 - Introduction To Neutron Physics and
- NUCL 40200 - Engineering Of Nuclear Power Systems
OR
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I and

- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
OR
- NUCL course - Credit Hours: 3.00 and
- Additional course - Credit Hours: 2.00-3.00
OR
- NUCL course* - Credit Hours: 3.00
- NUCL course* - Credit Hours: 3.00

Notes

- Provided the above 12 credit hours are successfully completed with a grade of "C" or better in all of the courses, a NE Minor will be awarded.
- All of the above prescribed minor courses must be taken at Purdue West Lafayette campus to be eligible for the NE Minor.
- *These are a combination of two upper division NE courses recommended by NE faculty.
- Minimum Pre-requisites and/or Co-requisites include: MA 16500, MA 16600, MA 26100, MA 26200 (or MA 26500 + MA 26600); PHYS 17200, PHYS 24100 (or PHYS 26100 or PHYS 27200), or ENGR 16200.

Disclaimer

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

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Nuclear Engineering Approved Technical Electives

*For 300 level engineering courses or any other course not listed, please consult the Academic Advisor. Some courses may require a petition to the Undergraduate Committee (UGC) and are not guaranteed to be approved.

Any 400+ Level Engineering Course Offered at PWL Campus

Materials

- AAE 55300 - Elasticity In Aerospace Engineering
- MSE 55500 - Deformation Mechanisms In Crystalline Solids
- MSE 55600 - Fracture Of Materials
- MSE 55900 - Phase Equilibria In Multicomponent Systems
- MSE 56000 - The Production Of Inorganic Materials
- MSE 57500 - Transport Phenomena In Solids
- MSE 57600 - Corrosion
- MSE 50800 - Phase Transformations In Solids
- MSE 53100 - Quantitative Analysis Of Microstructure
- MSE 50200 - Defects In Solids

- MSE 34000 - Transport Phenomena
- MSE 36700 - Materials Processing Laboratory
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 38200 - Mechanical Response Of Materials
- MSE 33500 - Materials Characterization Laboratory
- NUCL 50300 - Radioactive Waste Management
- NUCL 51000 - Nuclear Reactor Theory I
- NUCL 52000 - Radiation Effects And Reactor Materials

Fusion

- MA 52000 - Boundary Value Problems Of Differential Equations
- NUCL 52000 - Radiation Effects And Reactor Materials
- NUCL 56000 - Introduction To Fusion Technology
- NUCL 56300 - Direct Energy Conversion
- NUCL 57000 - Fuzzy Approaches In Engineering
- NUCL 51000 - Nuclear Reactor Theory I
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion
- PHYS 33000 - Intermediate Electricity And Magnetism

Power

- HSCI 52600 - Principles Of Health Physics And Dosimetry
- IE 57700 - Human Factors In Engineering
- ME 43000 - Power Engineering
- ME 43300 - Principles Of Turbomachinery
- NUCL 52000 - Radiation Effects And Reactor Materials
- NUCL 55100 - Mass, Momentum, And Energy Transfer In Energy Systems
- NUCL 55200 - Thermal-Hydraulics And Reactor Safety
- NUCL 56000 - Introduction To Fusion Technology
- NUCL 56300 - Direct Energy Conversion
- NUCL 57000 - Fuzzy Approaches In Engineering
- NUCL 57500 - Neural Computing in Engineering
- NUCL 47000 - Fuel Cell Engineering
- NUCL 50300 - Radioactive Waste Management
- NUCL 51000 - Nuclear Reactor Theory I
- NUCL 51100 - Reactor Theory And Kinetics
- NUCL 51200 - Computers In Reactor Analysis
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion

Nuclear Engineering General Education Requirements

Students are strongly encouraged to develop a coherent general education plan, and distribute their general education credits throughout their academic program. The collection of courses used to fulfill this requirement must meet all of the following conditions:

1. Students must select from the list of courses approved by the University Core Council to satisfy each of the six Foundational Learning Outcomes listed below. Some courses may have been approved to meet more than one of the Foundational Learning Outcomes, so fewer than six courses can be used to fulfill this condition. There is no minimum number of credit hours needed to satisfy each component of the College of Engineering General Education Program.

- a. Written Communication (WC)
- b. Oral Communication (OC)
- c. Information Literacy (IL)
- d. Human Cultures: Humanities (H)
- e. Human Cultures: Behavior/Social Science (BSS)
- f. Science, Technology, and Society (STS)

2. Students must take additional approved courses to reach the minimum requirement of 12 credit hours. Six credits must be from the Human Cultures: Humanities and 6 credits must be from the Human Cultures: Behavior/Social Sciences. Students must select the courses as follows:

- a. All courses approved by the University Core Council as meeting a Foundational Learning Outcome (see above list).
- b. Six credits must be drawn from courses in the Humanities offered by the departments of English, Foreign Languages and Literatures, History, Philosophy, and Visual and Performing Arts. In general, this relates to the following subject codes: AAS, AD, AGECE, AMST, ARAB, ASL, CHNS, CLCS, CMPL, ENGL, FR, GER, GREK, HEBR, HIST, ITAL, JWST, JPNS, MARS, MUS, PHIL, PTGS, REL, RUSS, SPAN, THTR
- c. Six credits must be drawn from courses in the Behavioral/Social Sciences offered by the departments of Agricultural Economics, Speech, Language, and Hearing Sciences, Child Development and Family Studies, Communication, Economics, Political Sciences, Psychological Sciences, and Sociology and Anthropology. In general, this relates to the following subject codes: AGECE, ANTH, ASAM, COM, ECON, HDFS, LC, LING, MARS, POL, PSY, SLHS, SOC, WGSS

Any course offered by these departments is allowable, provided that it is open to students in the offering department and is not focused primarily on professional training, natural science or mathematics. If there is any question about if an elective will count, it is recommended to speak with the Academic Program Administrator prior to taking the course.

3. At least 6 of the 12 required credit hours must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department. Three credits must come from the Humanities and 3 credits must come from the Behavioral/Social Sciences.

4. A maximum of 6 credits can come from Transfer, AP, CR, and/or DC credit.

5. HIST 15100 and HIST 15200 and/or ECON 25100 and ECON 25200 do not count as an upper/lower sequence