

# College of Engineering

## College of Engineering

### Overview

#### Highly Ranked

*U.S. News and World Report* has ranked our programs in the Top 10 nationwide, with our graduate program at No. 4, our undergraduate program at No. 9, and online graduate program at No. 3. Purdue's College of Engineering has the largest top 10 undergraduate engineering program in the U.S. The College includes 13 academic programs, all with high rankings; Agricultural and Biological Engineering is No. 1 for graduate and undergraduate studies.

#### Accelerated Growth

Purdue's College of Engineering is rapidly accelerating progress toward the Pinnacle of Excellence at Scale. Among the signs, we have more than 10 federally funded centers, each with at least \$10 million in research funding; we are constructing the largest academic facility on campus and preparing to erect a building for leading-edge hypersonics research; and we are the first non-medical public college to raise more than \$1 billion in philanthropic gifts in a campaign.

#### Beyond the Classroom: Interdisciplinary, Global, Diverse Learning

Beginning in their first year, students have abundant opportunities to augment and enrich their education through experiential learning and contributions to world-improving technologies. Teaching and research programs **transcend traditional academic and grade-level boundaries, often engaging industry, government, alumni and other university partners**. Leveraging our diversity and incorporating all perspectives, we're **equipping students to excel in an ever-evolving and increasingly global economy**. G.R.I.T.+ initiatives offer Purdue Engineers experiential learning opportunities, such as study and work abroad, industry co-ops and internships, hands-on research, community service, and entrepreneurship projects.

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

College of Engineering Administration	Elmore Family School of Electrical and Computer Engineering
School of Aeronautics and Astronautics	School of Engineering Education
Department of Agricultural and Biological Engineering	Division of Environmental and Ecological Engineering
Weldon School of Biomedical Engineering	School of Industrial Engineering

Davidson School of Chemical Engineering	School of Materials Engineering
Lyles School of Civil Engineering	School of Mechanical Engineering
Division of Construction Engineering and Management	School of Nuclear Engineering

## Admissions (website)

### First-Year Engineering at Purdue

The First-Year Engineering (FYE) program 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

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

### College of Engineering Administration

## Systems Certificate information

# Certificate

## Pharmaceutical Manufacturing Certificate

### About the Certificate

The Certificate in Pharmaceutical Manufacturing (16 credits) is open to undergraduate students interested in careers in the pharmaceutical industry, especially within the manufacturing and supply chain sectors. The certificate is designed to supplement the baccalaureate plans of studies in different majors, including (but not limited to) engineering, computer science, chemistry, biology, pharmaceutical sciences, health sciences, technology, and business, chemistry, biology, pharmaceutical sciences, and health sciences. The pharmaceutical and life sciences industry talent needs are shifting driven by the new therapeutic product modalities (e.g., cell and gene therapies), digitization, and advanced data analytics. The technological disruptors are creating a skill mismatch between the traditional degrees associated with the pharmaceutical sector and future demands. By 2030 a projected 90,000 current jobs in the pharma industry will disappear due to automation while up to 120,000 of different jobs in high-skilled occupations will be created. Purdue University has gained an understanding of the industry's needs through collaboration with Work Force of the Future initiative, sponsored by the ISPE Global Pharmaceutical Manufacturing Leadership Forum, and partnerships with major regional life sciences industry employers such as Eli Lilly. While the degrees most associated with this sector (chemistry, chemical engineering, and pharmaceutical sciences) will continue to be valuable, the disciplines of data science, artificial intelligence, mechanical engineering, biomedical engineering, industrial engineering, as well as robotics and automation technologies will play significant roles within these organizations. Graduates of such programs currently have limited exposure to drug development and regulatory process required to ensure public safety. The undergraduate certificate provides broad technical exposure to these topics through relevant courses and experiential learning opportunities. Combined with their Purdue major plans of study, students who attain this certificate will be well positioned to advance into successful careers working in the global pharmaceutical industry. Clinical exposure to these topics through relevant courses and experiential learning opportunities. Combined with their Purdue major plans of study, students who attain this certificate will be well positioned to advance into successful careers working in the global pharmaceutical industry.

### Requirements for the Certificate (16 credits)

#### Required Courses (1 credits)

At least 1 credit hour of orientation seminar from the course list below. For ENGR 10301, the section titled "Pharma Careers and Drug Development" is required.

- ENGR 10301 - Introduction To Engineering In Practice
- IPPH 10000 - Pharmaceutical Sciences Orientation

#### Experiential Learning in Pharmaceutical Manufacturing (6 credits)

- Full-time internship or co-op in areas relevant to pharmaceutical manufacturing.
  - A 10-week or more of full-time internship/co-op is equivalent to 4 credit hours.

- Summer Undergraduate Research Fellowship or similar full-time undergraduate research internship is considered equivalent to 2 credit hours.
- Relevant Study Abroad courses.

## Technical Areas (9 credits)

At least 9 credit hours of courses in at least two out of four technical areas below (with at least 6 credit hours should be at 400-level or above).

### Pharmaceutical Product Development and Regulatory Affairs

- ABE 51100 - Drug Development
  - ABE 51200 - Good Regulatory Practices
  - ABE 51300 - Quality Management, Audits, Inspections
  - BIOL 39500 - Special Assignments
  - BIOL 41500 - Introduction To Molecular Biology
  - BIOL 41600 - Viruses And Viral Disease
  - BIOL 51600 - Molecular Biology Of Cancer
  - BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
  - BIOL 53700 - Immunobiology
  - BIOL 59500 - Special Assignments
    - Immunology, Cancer and Infectious Disease
    - Neural Mechanisms Health Disease
    - Pathways in Human Health and Disease
  - BME 55600 - Introduction To Clinical Medicine For Engineering Solutions
  - BME 56100 - Preclinical And Clinical Study Design
  - BME 56200 - Regulatory Issues Surrounding Approval Of Biomedical Devices
  - BME 56300 - Quality Systems For Regulatory Compliance
  - BME 56400 - Ethical Engineering Of Medical Technologies
  - CHE 59700 - Special Topics In Chemical Engineering
  - HSOP 50100 - Food And Drug Law I
  - IE 53000 - Quality Control
  - IE 55800 - Safety Engineering
  - IE 59000 - Topics In Industrial Engineering
  - IPPH 58300 - Advanced Biopharmaceutics
  - MCMP 42200 - Immunology
  - MCMP 54400 - Drug Classes And Mechanisms
  - PHRM 46000 - Drug Discovery And Development I
  - PHRM 46100 - Drug Discovery And Development II
  - PHRM 48500 - Intercultural And Global Health Issues
  - PHRM 82400 - Principles Of Pathophysiology And Drug Action
  - PHRM 82800 - Dosage Forms I
  - PHRM 82900 - Dosage Forms II
- Additional Approved Non-PWL Courses:
- BIOT 102 Survey of Good Manufacturing Practices (Ivy Tech)
  - BIOT 103 Safety and Regulatory Compliance for Biotechnology (Ivy Tech)
  - BIOT 104 Quality Practices (Ivy Tech)
  - BIOT 105 Survey of Regulatory Affairs (Ivy Tech)

- BME 57100 Drug Delivery (IUPUI)

## Pharmaceutical Manufacturing Science and Technology (Materials, Measurement and Manufacturing)

- ABE 30300 - Applications Of Physical Chemistry To Biological Processes
- ABE 30400 - Bioprocess Engineering Laboratory
- ABE 30700 - Momentum Transfer In Food And Biological Systems
- ABE 30800 - Heat And Mass Transfer In Food And Biological Systems
- ABE 37000 - Biological/Microbial Kinetics And Reaction Engineering
- ABE 45700 - Transport Operations In Food And Biological Engineering I
- ABE 46000 - Sensors And Process Control
- ABE 50501 - Particle, Powder, and Compact Characterization
- ABE 50502 - Particles, Powders, And Compact Characterization Laboratory
- ABE 55700 - Transport Operations In Food And Biological Systems II
- ABE 55800 - Process Design For Food And Biological Systems
- BIOL 59500 - Special Assignments - Methods and Measurements in Physical Biochem
- BME 30400 - Biomedical Transport Fundamentals
- BME 36600 - Foundations Of Biomedical Data Science
- BME 47000 - Biomolecular Engineering
- CHE 53600 - Particulate Systems
- CHE 55100 - Principles Of Pharmaceutical Engineering
- CHE 55300 - Pharmaceutical Process, Development And Design
- CHE 55400 - Smart Manufacturing In Process Industries
- CHE 55500 - Computer Integrated Process Operations
- CHE 59700 - Special Topics In Chemical Engineering
  - Industrial Chemical Technology
  - Process Safety
- CHM 32100 - Analytical Chemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 42400 - Analytical Chemistry II
- CHM 43300 - Biochemistry
- CHM 43800 - Introduction To Molecular Biotechnology
- IE 37000 - Manufacturing Processes I
- IE 57400 - Industrial Robotics And Flexible Assembly
- IE 59000 - Topics In Industrial Engineering
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- IPPH 58000 - Physical Chemical Principles
- IPPH 58700 - Pharmaceutical Solids
- ME 53101 - Particle, Powder, And Compact Characterization
- ME 53102 - Particle, Powder, And Compact Characterization Laboratory
- ME 59500 - Special-Topic Minicourses - Powder Storage and Flow
- MGMT 45200 - Manufacturing Strategy And Process Innovation
- MSE 51200 - Powder Processing
- MSE 59700 - Selected Topics In Materials Engineering - Lean Manufacturing
- PHRM 83600 - Biochemistry For Pharmaceutical Sciences II

Additional Approved non-PWL Courses:

- BIOT 110 Pharmaceutical Product Manufacturing (Ivy Tech)
- BME 38100 Implantable Materials And Biological Response (IUPUI)
- BME 38800 Applied Biomaterials (IUPUI)
- BME 46100 Transport Processes In Biomedical Engineering (IUPUI)
- BME 58200 Advanced Biomedical Polymers (IUPUI)

## Data Analytics and Computing

- ABE 30100 - Numerical And Computational Modeling In Biological Engineering
- BME 36600 - Foundations Of Biomedical Data Science
- BME 40100 - Mathematical & Computational Analysis Of Complex System Dynamics In Biology, Medicine, & Healthcare
- BME 50100 - Multivariate Analyses In Biostatistics
- CHE 32000 - Statistical Modeling And Quality Enhancement
- CNIT 48800 - Data Warehousing
- CNIT 57000 - IT Data Analytics
- CS 24200 - Introduction To Data Science
- ECE 20875 - Python For Data Science
- ECE 47300 - Introduction To Artificial Intelligence
- IE 33200 - Computing In Industrial Engineering
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- IE 48100 - Introduction To System Simulation
- IE 49000 - Special Topics In Industrial Engineering - Machine Learning and Its Applications
- IE 53300 - Industrial Applications Of Statistics
- IE 53500 - Linear Programming
- IE 53600 - Stochastic Models In Operations Research I
- IE 58000 - Systems Simulation
- IE 59000 - Topics In Industrial Engineering
- ILS 10300 - Introduction To Data Lifecycle Management
- ILS 23000 - Data Science And Society: Ethical Legal Social Issues
- ILS 29500 - Special Topics In Information And Data Science
- MGMT 47500 - Machine Learning For Business
- MGMT 47900 - Data Visualization
- MGMT 48800 - Data-Driven Decisions In Digital Markets
- MGMT 54400 - Database Management Systems
- PHIL 20800 - Ethics Of Data Science
- POL 22800 - Data Science And Public Policy
- STAT 35500 - Statistics For Data Science

## Supply Chain and Business Operations

- IE 49000 - Special Topics In Industrial Engineering - Supply Chain Engineering
- IE 56600 - Production Management Control
- IE 57900 - Design And Control Of Production And Manufacturing Systems
- IE 58200 - Advanced Facilities Design
- MGMT 26100 - Introduction To Supply Chain Management

- MGMT 40500 - Six Sigma And Quality Analytics
- MGMT 46200 - Advanced Manufacturing Planning And Control Systems
- MGMT 46300 - Supply Chain Analytics
- MGMT 46400 - Logistics: Concepts And Models
- MGMT 46501 - Strategic Sourcing And Procurement
- MGMT 46600 - Project Management

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## Semiconductors and Microelectronics Certificate

### About the Certificate

The Certificate in Semiconductors and Microelectronics (16 credits) will be open to students in all undergraduate majors interested in careers in the field of semiconductors and microelectronics. This certificate will give undergraduate students broad technical exposure to topics in the areas of semiconductors and microelectronics and is designed to supplement the baccalaureate plans of studies in different majors, including (but not limited to) engineering, computer science, physics, chemistry, technology, and business. The U.S. semiconductor/microelectronics industry is facing an overwhelming and rapidly growing crunch for trained talent - with industry forecasts estimating the need at a minimum of 50,000 additional trained semiconductor engineers and scientists by 2030. The broad scope of the semiconductors and microelectronics industry - from materials and processing to device and integrated circuit/system design, to manufacturing, supply chains, and data analytics, to testing, qualification, packaging, and thermal management - provides exciting career opportunities for students from a wide range of disciplines.

### Requirements for the Certificate (16 credits)

#### Required Course (1 credit)

*For ENGR 10301, the section titled "Introduction to Semiconductors" or similar is required.*

- ENGR 10301 - Introduction To Engineering In Practice

#### Semiconductor Experience for Undergraduates (6 credits)

*Research courses including relevant independent studies and Vertically Integrated Projects (VIP) courses, or Full-time internship relevant to technical areas of semiconductors and microelectronics. Summer or semester-long of full-time internship/co-op/SURF or similar experience is considered equivalent to 6 credit hours.*

#### Technical Courses (9 credits)

Take at least 9 credit hours of courses in at least two out of five technical areas:

- Semiconductor and Microelectronic Devices
- Semiconductor Materials, Characterization, and Processing
- Integrated Circuit and System Design, Electronic Design Automation
- Electronics Packaging, Heterogeneous Integration, and Thermal Management
- Semiconductor Manufacturing and Global Supply Chain Management

## Semiconductor and Microelectronic Devices

- ECE 30500 - Semiconductor Devices
- ECE 45300 - Fundamentals Of Nanoelectronics
- ECE 50616 - Physics And Manufacturing Of Solar Cells
- ECE 50631 - Fundamentals Of Current Flow
- ECE 50632 - Introduction To Quantum Transport
- ECE 50633 - Boltzmann Law: Physics To Computing
- ECE 50653 - Fundamentals Of Nanoelectronics
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- ECE 59500 - Selected Topics In Electrical Engineering
  - Advanced Lithography
  - Essentials of Transistors
  - MEMS I: Microfabrication and Materials for MEMS
  - MEMS II: Fundamentals of MEMS Design
  - MEMS III: Applications in MEMS
  - Microfabrication Fundamentals
  - Semiconductor Fundamentals
  - Semiconductor Manufacturing
  - Theory and Practice of Solar Cells: A Cell to System Perspective
- PHYS 52600 - Physics Of Quantum Computing And Quantum Information

## Semiconductor Materials, Characterization, and Processing

- CHE 42000 - Process Safety Management And Analysis
- CHE 45600 - Process Dynamics And Control
- CHE 56400 - Organic Electronic Materials And Devices
- CHE 59700 - Special Topics In Chemical Engineering - Manufacturing Advanced Composites
- IE 37000 - Manufacturing Processes I
- IE 38300 - Integrated Production Systems I
- IE 47000 - Manufacturing Processes II
- IE 57000 - Manufacturing Process Engineering
- IE 57900 - Design And Control Of Production And Manufacturing Systems
- IE 58300 - Design And Evaluation Of Material Handling Systems
- ME 36300 - Principles And Practices Of Manufacturing Processes
- ME 55700 - Design For Manufacturability
- MSE 23000 - Structure And Properties Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 49700 - Selected Topics In Materials Engineering - Electronics Packaging and Heterogeneous Integration
- MSE 50200 - Defects In Solids
- MSE 51000 - Microstructural Characterization Techniques



- MSE 52300 - Physical Ceramics
- MSE 54800 - Deposition Processing Of Thin Films And Coatings
- MSE 59700 - Selected Topics In Materials Engineering
  - Magnetic Materials: Physical Properties and Applications
  - Modeling & Simulation for Materials
  - Solid State Materials
- NUCL 42001 - Radiation Interaction With Materials And Applications
- NUCL 52000 - Radiation Effects And Reactor Materials
- NUCL 55300 - Nano-Macro Scale Applications Of Nuclear Technology

## Integrated Circuit & System Design, Electronic Design Automation

- ECE 33700 - ASIC Design Laboratory
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 51220 - Applied Algorithms
- ECE 55900 - MOS VLSI Design
- ECE 56800 - Embedded Systems
- ECE 59500 - Selected Topics In Electrical Engineering
  - CMOS Analog IC Design
  - Computer Vision for Embedded Systems
  - Digital Systems Design Automation

## Electronics Packaging, Heterogeneous Integration, and Thermal Management

- CHE 32000 - Statistical Modeling And Quality Enhancement
- ECE 59500 - Selected Topics In Electrical Engineering - Introduction to Electronics Packaging and Heterogeneous Integration

## Semiconductor Manufacturing and Global Supply Chain Management

- CHE 32000 - Statistical Modeling And Quality Enhancement
- IE 38600 - Work Analysis And Design I
- IE 48400 - Integrated Production Systems II
- IE 48600 - Work Analysis And Design II
- IE 49000 - Special Topics In Industrial Engineering - Supply Chain Engineering
- IE 53200 - Reliability
- IE 53300 - Industrial Applications Of Statistics
- IE 55800 - Safety Engineering
- IE 56600 - Production Management Control
- IE 58200 - Advanced Facilities Design
- MGMT 26100 - Introduction To Supply Chain Management
- MGMT 40500 - Six Sigma And Quality Analytics
- MGMT 46200 - Advanced Manufacturing Planning And Control Systems
- MGMT 46300 - Supply Chain Analytics
- MGMT 47300 - Data Mining
- MGMT 47400 - Predictive Analytics

- MGMT 47900 - Data Visualization

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## 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 Capstone

#### 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 Capstone - **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](mailto: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](mailto:gep@purdue.edu).

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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)

Two CORE COURSES are required that will collectively provide an introduction to problem framing, solution space development, innovation, and design fundamentals, and in-depth experiential learning opportunity to apply gained skills to complex design challenges.

- ENGR 30500 - Fundamentals Of Innovation Theory And Practice or
- ENGR 49001 - Breakthrough Thinking For Complex Challenges or
- CE 59601 - Entrepreneurship And Business Strategy In Engineering (may fulfill required Required Core course or Develop Strategies for Financial Sustainability Selective. This course can only fulfill one requirement) or
- CE 59801 - Breakthrough Thinking For Complex Challenges or
- MSE 59700 - Selected Topics In Materials Engineering (This is a temporary course number and only this title meets the requirement. The new course number will be MSE 57400) or
- IDE 48500 - Multidisciplinary Engineering Design Project

### 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
- ANTH 38400 - Designing For People: Anthropological Approaches
- EEE 25000 - Environmental, Ecological, and Engineering Systems
- IE 49000 - Special Topics In Industrial Engineering (Imagine, Model, and Make)
- IE 47200 - Imagine, Model, 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 - Addressing Public Issues
- COM 31800 - Principles Of Persuasion
- COM 30300 - Intercultural Communication
- CSR 33100 - Consumer Behavior
- CSR 34400 - Fundamentals Of Negotiations
- ECON 47100 - Behavioral Economics
- MGMT 42710 - Digital Marketing Strategy
- MGMT 44362 - Leadership In A Changing World
- OBHR 33000 - Introduction To Organizational Behavior
- PHIL 22100 - Introduction To Philosophy Of Science
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- 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.

- CE 59601 - Entrepreneurship And Business Strategy In Engineering
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ENTR 31000 - Marketing And Management For New Ventures
- 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 33900 - Sociology Of Global Development

### Electives (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

- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 34000 - International Economic Development
- AGEC 20400 - Introduction To Resource Economics And Environmental Policy
- AMST 31000 - Invention, Innovation, And Design
- AMST 32500 - Sports, Technology, And Innovation
- ANTH 57500 - Economic Anthropology
- ANTH 32700 - Environment And Culture
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- 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

- AGEC 52500 - Environmental Policy Analysis
- 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
- 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
- PUBH 51100 - Foundations Of Global Health

## Notes:

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

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.

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

# **First-Year Engineering**

## **Pre-Program**

## **First Year Engineering Program Requirements - Other Options**

### **First-Year Engineering Program Requirements - EPICS Option**

Only for students in the EPICS learning community

#### **Fall 1st Year**

- **FYE Requirement #1** ♦ - Credit Hours: 1.00
- EPCS 11100 - First Year Participation In EPICS I
- **FYE Requirement #2** ♦ - Credit Hours: 2.00
- ENGR 13300 - Transforming Ideas To Innovation, EPICS
- **FYE Requirement #5** - Credit Hours: 4.00
- CHM 11500 - General Chemistry
- **FYE Requirement #3** ♦ - Credit Hours: 4.00-5.00
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- **FYE Requirement #8** - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)

## 14-16 Credits

### Spring 1st Year

**FYE Requirement #1** ♦ - Credit Hours: 1.00

- EPCS 12100 - First Year Participation In EPICS II
- **FYE Requirement #4** - Credit Hours: 4.00-5.00
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- **FYE Requirement #6** - Credit Hours: 4.00
- PHYS 17200 - Modern Mechanics
- **FYE Requirement #8** - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)
- **FYE Requirement #7** - FYE Selective - Credit Hours: 3.00-4.00

## 15-18 Credits

### First-Year Engineering Program Requirements - GOSS Scholars Option

Only for students in the GOSS Scholars learning community

### Fall 1st Year

- **FYE Requirement #1 & #6** ♦ - Credit Hours: 4.00
- ENGR 16100 - Honors Introduction To Innovation And The Physical Science Of Engineering Design I
- **FYE Requirement #5** - Credit Hours: 4.00
- CHM 11500 - General Chemistry
- **FYE Requirement #3** ♦ - Credit Hours: 4.00-5.00
- MA 16100 - Plane Analytic Geometry And Calculus I or

- MA 16500 - Analytic Geometry And Calculus I
- FYE Requirement #8 - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)

## 15-17 Credits

### Spring 1st Year

- FYE Requirement #2 & #6 ♦ - Credit Hours: 4.00
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II
- **FYE Requirement #4** - Credit Hours: 4.00-5.00
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- FYE Requirement #8 - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)

**FYE Requirement #7** - FYE Selective - Credit Hours: 3.00-4.00

## 14-17 Credits

### First-Year Engineering Program Requirements - VIP Option

Only for students in the VIP (Vertical Integrated Projects) Learning Community

### Fall 1st Year

- **FYE Requirement #2** ♦ - Credit Hours: 2.00
- ENGR 13300 - Transforming Ideas To Innovation, EPICS and
- **FYE Requirement #1** ♦ - Credit Hours: 1.00
- VIP 17911 - First Year Participation In Vertically Integrated Projects (VIP) I
- **FYE Requirement #3** ♦ - Credit Hours: 4.00-5.00
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- FYE Requirement #5 - Credit Hours: 4.00
- CHM 11500 - General Chemistry
- FYE Requirement #8 - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)

## 14-16 Credits

## Spring 1st Year

- **FYE Requirement #1** ♦ - Credit Hours: 1.00
- VIP 17912 - First Year Participation In Vertically Integrated Projects (VIP) II
- **FYE Requirement #4** - Credit Hours: 4.00-5.00
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- **FYE Requirement #6** - Credit Hours: 4.00
- PHYS 17200 - Modern Mechanics
- **FYE Requirement #8** - Credit Hours: 3.00-4.00
  - Written Communication Selective (satisfies Written Communication for core) or
  - Oral Communication Selective (satisfies Oral Communication for core)

**FYE Requirement #7** - FYE Selective - Credit Hours: 3.00-4.00

## 15-18 Credits

# 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
- other common advisor questions

First-Year Engineering Major Change (CODO) Requirements

## Requirements for First-Year Engineering (FYE) (29-30 credits)

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

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

One of the following course options:

- ENGR 13100 - Transforming Ideas To Innovation I ♦ (satisfies Information Literacy for core) or 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 ♦  
OR
- VIP 17911 - First Year Participation In Vertically Integrated Projects (VIP) I ♦ and
- VIP 17912 - First Year Participation In Vertically Integrated Projects (VIP) II ♦  
OR
- ENGR 13000 - Transforming Ideas Into Innovations ♦

## 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 ♦ (satisfies Information Literacy for core)  
OR
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II ♦ (satisfies Information Literacy for core)  
OR
- ENGR 13000 - Transforming Ideas Into Innovations ♦

## Requirement #3: Calculus I (4-5 credits) (satisfies Quantitative Reasoning for core)

One of the following course options:

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

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

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

## Requirement #5: Chemistry I (4-6 credits) (satisfies Science #1 for core)

One of the following course options:

- CHM 11500 - General Chemistry  
OR
- CHM 11100 - General Chemistry and
- CHM 11200 - General Chemistry

## Requirement #6: Physics (4 credits) (satisfies Science #2 for core)

One of the following course options:

- PHYS 17200 - Modern Mechanics  
OR

- ENGR 16100 - Honors Introduction To Innovation And The Physical Science Of Engineering Design I and
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II

## Requirement #7: First-Year Engineering Selective (3-4 credits)

One of the following course options:

- CHM 11600 - General Chemistry (*satisfies Science for core*) or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I (*satisfies Science for core*) or
- BIOL 11100 - Fundamentals Of Biology II (*satisfies Science for core*)

## Requirement #8: Written and Oral Communication (6-7 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

## Other Options for First Year Engineering

EPICS or GOSS Scholar and VIP First Year Engineering Program Requirements - Other Options

## Grade Average Requirement

To complete the First-Year Engineering (FYE) program:

1. The student's cumulative GPA must be of 2.00 or greater.
2. 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.
3. If a student meets a requirement in more than one way, only one will be used to calculate the EAI. The FYE 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.
4. These rules are available to students in the FYE Advising office.
5. For more information click [here](#) or talk with an FYE academic advisor

## Grade Requirements

Earned grades must be C- or better for any course used to meet the First-Year Engineering Program requirements, if the grade posts to the Purdue transcript.

## Pass/No Pass Policy

Pass/No Pass grades are not accepted for any course used to meet the First-Year Engineering Program requirements.

## Transfer Credit Policy

Equivalent credit earned at other universities may meet FYE and degree requirements. Purdue requires a grade of C- or higher for a transfer course to be awarded Purdue credit, but the exact grade will not be included in your Purdue GPA or your EAI. Note that courses taken on Purdue Regional campuses (Purdue-North Central, Purdue-Calumet, IPFW, and sometimes IUPUI -- see here for details) are not considered transfer courses; grades from these courses do count on your Purdue GPA and EAI.

Students who are currently enrolled at another university are encouraged to visit the Office of Admissions website for information on transfer requirements. The Purdue Transfer Credit Database may also be useful to determine if courses from the other university have already been evaluated for equivalence to Purdue courses.

Many FYE students take summer courses at a different university. Students can find information about summer options and credit on the First-Year Engineering website:

<https://engineering.purdue.edu/ENE/Academics/Undergrad/FYE/SummerCourses>.

## Notes

- First-Year Engineering students in the EPICS learning community take the ENGR 13300 & EPICS 11100 & EPICS 12100 engineering pathway.
- First-Year Engineering students in the VIP learning community take the ENGR 13300 & VIP 17911 & VIP 17912 engineering pathway.
- First-Year Engineering students in the Engineering Honors & Goss Scholars learning community take the ENGR 16100 and ENGR 16200 pathway.
- First-Year Engineering students with enough coursework to complete program requirements in one semester can take ENGR 13000. Please speak with an FYE advisor about whether this course option is appropriate for you.
- Early Start (summer) students should take "ENGR-10301- Intro to Engineering disciplines" if enrolled in ENGR-13100.
- Students considering the following majors, who do not have credit for CHM 11500, must take CHM 11500 in their first Fall term at Purdue: Agricultural, Biological, Biomedical, Chemical, Civil, Environmental & Ecological, or Materials Engineering.
- Preferred FYE selective depending on intended engineering major: Some of the Engineering degree programs have recommendations for the specific FYE Selective course. Students are encouraged to talk to an FYE Advisor for more information:
  - Biological Engineering (in ABE) and BME prefer CHM 11600 as the FYE Selective.
  - Agricultural Engineering (in ABE), CHE, CE, EEE, and MSE prefer CHM 11600 as the FYE Selective (and some of them require the course for graduation).
  - AAE, ECE, IE and NE prefer CS 15900 as the FYE Selective (and some of them require the course for graduation).
  - CEM, IDES/MDE, and ME accept any valid FYE Selective course (though some require a particular course for graduation).
- The following courses satisfy the FYE selective requirement (Requirement #7) if they were taken before students entered the First-Year Engineering program: CHM 12600, 12901, 13600, CS 15800, 18000.
- The following course satisfies the Chemistry I requirement (Requirement #5) if it was taken before students entered the First-Year Engineering program: CHM 12500.

## Non-course / Non-credit Requirements

Students must complete First-Year Engineering Program requirements in a maximum of four semesters (Summers not included). Fourth-semester students who are not completing their First-Year Engineering Program coursework this semester cannot continue to be in the First-Year Engineering Program. They must CODO to another college, school or

program at Purdue. More information about the Fourth semester policy can be found on the FYE website. For more details click here.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 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.

- 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.

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.

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

# 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 and meets the following ABET criteria for aerospace engineering programs:

"Aerospace engineering programs or similarly named engineering programs, which combine aeronautical engineering and astronautical engineering, must include all curricular topics in sufficient depth for engineering practice in one of the areas - aeronautical engineering or astronautical engineering as described above - and, in addition, similar depth in at least two topics from the other area."

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.

School of Aeronautics and Astronautics

Aeronautical and Astronautical Engineering Major Change (CODO) Requirements

## Degree Requirements

### 130 Credits Required

#### AAE Engineering Major Courses (56 credits)

- AAE 20000 - Undergraduate Sophomore Seminar
- AAE 20300 - Aeromechanics I ♦ (C- or better)
- AAE 20400 - Aeromechanics II ♦ (C- or better)
- 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 (C- or better) 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 (see Supplemental Information)
- AAE Selectives - Credit Hours: 6.00 (see Supplemental Information)

#### Other Program/Departmental Requirements (77-89)

#### First Year Engineering Requirements (29-39 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 preferred, but not required to complete the First Year Engineering program.*

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)

- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Departmental Requirements (30-35 credits)

- MFET 16300 - Graphical Communication And Spatial Analysis
- CS 15900 - C Programming (may be taken in FYE) or
- CS 17700 - Programming With Multimedia Objects or
- CS 18000 - Problem Solving And Object-Oriented Programming
- MA 26100 - Multivariate Calculus ♦
- MA 26500 - Linear Algebra ♦
- 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
- AAE Business Rule - Credit Hours: 3.00 (can count for Technical Elective or General Education Elective depending on course taken)
- AAE Technical Electives - Credit Hours: 3.00 (can be satisfied with Business Rule course)
- AAE Statistics Selective - Credit Hours: 3.00

## General Education Requirements (18 credits)

*At least 6 credits from non-Introductory (30000-level or above OR from courses with a required pre-requisite in the same department.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (can be satisfied by Business Rule Course)
- General Education V - Credit Hours: 3.00
- General Education VI - Credit Hours: 0.00-2.00
- AAE Communications Rule - Credit Hours: 3.00 (satisfies 3.00 credits of Non-Introductory General Education)

## Supplemental List

[Click here for Aeronautical and Astronautical Engineering Supplemental Information](#)

## Grade Requirements

To graduate, students must receive a C- or better in AAE 20300, AAE 20400, AAE 33800, all MA (Math) courses and all courses in First-Year Engineering.

## GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science degree.
- AAE requires a minimum of a 2.0 for major GPA.

## Course Requirements and Notes

Students may double count in the following areas:

- UCC: Humanities for General Education elective
- UCC: Behavioral/Social Science for General Education elective
- UCC: Science, Tech, and Society for either Technical elective or General Education elective
- AAE Business Rule for either Technical elective or General Education elective
- AAE Communications Rule for a Non-Introductory General Education elective
- Civics Literacy courses for a General Education elective
- Minor and certificate courses for Technical electives, General Education electives, AAE Statistics Rule, AAE Business Rule, AAE Communications Rule, math requirements, or AAE Specialization/Selectives

Students may not double count in the following areas:

- Technical electives for AAE Specialization/Selectives

*Students are allowed to repeat courses, regardless of the grade, up to 3 attempts per University regulations.*

## Pass/No Pass Policy

- Only General Education and Technical electives may be taken in the Pass/No Pass grade mode. All other courses within the AAE Plan of Study are required to be taken for a grade.
- Students who do a semester or year-long study abroad exchange program are allowed to take AAE courses as Pass/No Pass during this program.

## Transfer Credit Policy

If you are interested in registering for a course offered by a different institution, you should first look it up in the Purdue Transfer Credit Database to see how the credit will transfer back to Purdue. In order for the course to be used to meet AAE degree requirements, it must transfer as a Purdue equivalent course approved to meet the requirement. If the institution or course is not listed, it may mean your course has not been evaluated yet. Please see your advisor for additional information.

You must earn a "C-" or better in order for a course to be transferred. Please note however, that the grade will not transfer and there will be no impact on your Purdue GPA.

**NOTE:** courses listed as "#XXXX" are considered undistributed credit, or courses which do not have a Purdue equivalent. These courses cannot be used to meet AAE degree requirements. **AAE courses will be reviewed on case-to-case basis.**

Please see your academic advisor for approval. Once the course is completed, you must send your official transcript to Purdue so that your credit may be awarded. Click here for instructions on sending your transcript to Purdue.

**NOTE:** If you are an incoming transfer student, please work with your advisor to determine exactly how your previous courses might transfer.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

## 16 Credits

## Aeronautical and Astronautical Engineering Program Requirements

### Fall 2nd Year

- AAE 20000 - Undergraduate Sophomore Seminar
- AAE 20300 - Aeromechanics I ♦
- CS 15900 - C Programming (if not taken in FYE) or
- CS 17700 - Programming With Multimedia Objects or
- CS 18000 - Problem Solving And Object-Oriented Programming
- MA 26100 - Multivariate Calculus ♦
- MA 26500 - Linear Algebra ♦
- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)

## 13-17 Credits

### Spring 2nd Year

- AAE 20400 - Aeromechanics II ♦
- AAE 20401 - Aeromechanics II Laboratory
- AAE 25100 - Introduction To Aerospace Design ♦
- MFET 16300 - Graphical Communication And Spatial Analysis (must be taken at the same time as AAE 25100)
- MA 26600 - Ordinary Differential Equations ♦
- ME 20000 - Thermodynamics I ♦
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

## 18-19 Credits

### Fall 3rd Year

- AAE 30000 - Undergraduate Junior Seminar
- AAE 30100 - Signal Analysis For Aerospace Engineering
- 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 ♦
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)

## 17-19 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 IV - Credit Hours: 3.00
- General Education V - Credit Hours: 0.00-2.00 (2 credits needed if STS not taken for 3 credits)

## 16-18 Credits

### Fall 4th Year

- AAE 36401 - Control Systems Laboratory
- AAE 40000 - Undergraduate Senior Seminar
- AAE Engr Specialization - Credit Hours: 3.00



- AAE Selectives - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Business Rule - Credit Hours: 3.00 (can satisfy Technical Elective or General Education Selective)
  - Technical Elective - Credit Hours: 3.00 (depending on Business Rule course taken)

OR

- General Education V - Credit Hours: 3.00 (depending on Business Rule course taken)

## 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
- AAE Communications Rule - Credit Hours: 3.00

## 18 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

## Aeronautical and Astronautical Engineering Supplemental Information

## AAE Engr Specialization and AAE Selective (15 credits)

Any course taken for specialization or selective credits may not count for technical elective credit.

- AAE Engr Specialization - Credit Hours: 9.00 (from ONE area below)
- AAE Selectives - Credit Hours: 6.00 (from any area below)

### AAE Specialization Areas

#### 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 51800 - Low-Gravity Fluid Dynamics
- AAE 51900 - Hypersonic Aerothermodynamics
- AAE 52000 - Experimental Aerodynamics
- AAE 52100 - Plasma Laboratory
- AAE 53400 - Spacecraft Electric Propulsion
- ME 41300 - Noise Control
- ME 43300 - Principles Of Turbomachinery
- ME 50900 - Intermediate Fluid Mechanics
- ME 51000 - Gas Dynamics
- ME 51300 - Engineering Acoustics
- ME 52600 - Spray Applications And Theory
- ME 53300 - Turbomachinery II

#### Astroynamics and Space Applications

Note: Only one class from STAT, IE, & ECE options may be used towards the specialization area.

- AAE 50700 - Principles Of Dynamics
- AAE 50800 - Optimization In Aerospace Engineering
- AAE 52300 - Introduction To Remote Sensing
- AAE 53200 - Orbit Mechanics
- AAE 57500 - Introduction To Satellite Navigation And Positioning
- ABE 49500 - Select Topics In Agricultural And Biological Engineering - Title: Space Biology And Medicine
- EAPS 57700 - Remote Sensing Of The Planets
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 57700 - Engineering Aspects Of Remote Sensing
- IE 23000 - Probability And Statistics In Engineering I
- ME 56200 - Advanced Dynamics
- STAT 51100 - Statistical Methods

## Autonomy and Control

Note: Only one class between STAT, IE, & ECE options may be used towards the specialization area.

- AAE 56100 - Introduction To Convex Optimization
- AAE 56400 - Systems Analysis And Synthesis
- AAE 56700 - Introduction To Applied Stochastic Processes
- AAE 56800 - Applied Optimal Control And Estimation
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- IE 23000 - Probability And Statistics In Engineering I
- ME 57500 - Theory And Design Of Control Systems
- STAT 51100 - Statistical Methods

## 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
- CGT 22600 - Introduction To Constraint-Based Modeling
- CGT 32600 - Graphics Standards For Product Definition
- ME 35400 - Machine Design
- ME 44400 - Computer-Aided Design And Prototyping
- ME 55300 - Product And Process Design
- ME 55700 - Design For Manufacturability
- MFET 20301 - Model-Based Definition
- MFET 21301 - Simulation And Visualization Applications
- MFET 30301 - Digital Manufacturing
- MFET 31301 - The Business Of Managing Digital Product Data
- SYS 35000 - Systems Methods
- SYS 40000 - Systems Praxis
- SYS 50000 - Perspectives On Systems
- SYS 51000 - Tools And Methodologies For Designing Systems
- SYS 53000 - Practical Systems Thinking

## Propulsion

At least one course must be from AAE for this specialized area.

- AAE 41200 - Introduction To Computational Fluid Dynamics
- AAE 43800 - Air-Breathing Propulsion

- AAE 43900 - Rocket Propulsion
- AAE 52100 - Plasma Laboratory
- 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 54500 - Dynamic Behavior of Materials
- AAE 54600 - Aerospace Structural Dynamics And Stability
- AAE 54800 - Mechanical Behavior Of Aerospace Materials
- 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 56300 - Mechanical Vibrations
- MSE 23000 - Structure And Properties Of Materials
- MSE 58600 - Experimental Characterization Of Advanced Composite Materials

## AAE Statistics Selective (3 credits)

- AAE 36100 - Introduction To Random Variables In Engineering
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering  
- Can also be used as AAE Specialization or Selective
- MA 41600 - Probability
- STAT 22500 - Introduction To Probability Models
- STAT 30100 - Elementary Statistical Methods
- STAT 31100 - Introductory Probability
- STAT 35000 - Introduction To Statistics
- STAT 35500 - Statistics For Data Science
- STAT 41600 - Probability
- STAT 51100 - Statistical Methods - Can also be used as AAE Specialization or Selective

## AAE Business Rule (3 credits to be taken in Technical Elective or General Education Elective)

### Technical Elective

- AFT 35100 - Leading People And Effective Communication I
- AFT 36100 - Leading People And Effective Communication II
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- IE 34300 - Engineering Economics
- MGMT 20000 - Introductory Accounting

### General Education Elective

- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics

## AAE Technical Electives (3 credits)

Any course taken for specialization or selective credits may not count for technical elective credit.

- ABE 49500 - Select Topics In Agricultural And Biological Engineering - Title: Space Biology And Medicine
- ENGR 31000 - Engineering In Global Context
- ENGR 39697 - Global Engineering Projects
- ENGR 49600 - Experimental Courses - Title: High Tech Entrepreneurship
- IDE 49500 - Special Topics In Interdisciplinary Engineering Title: Engineering Ethics
- 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 49601 - Experimental Courses Title: Renewable Energy Technologies
- 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 (*Except CGT 16300; MFET 16300*)
- CHE 10000: 59900

- CHM 10000: 59900 (*Except CHM11100, 11200, 11500*)
- CS 20000: 59900
- EAPS 10000: 59900 (*Except EAPS 12500*)
- ECE 10000: 59900
- ECET 10000: 59900
- EEE 10000: 59900
- ENTM 10000: 59900
- ENTR 10000: 59900
- EPCS 10000: 59900 (*Except EPCS 11100, 12100*)
- FNR 10000: 59900
- FS 10000: 59900 (*Except FS 47000*)
- HORT 10000: 59900 (*Except HORT 30600, 36000*)
- HSCI 10000: 59900
- IE 10000: 59900
- MA 30000: 59900
- MGMT 10000: 59900
- MSE 10000: 59900
- MSL 30000: 59900
- NRES 10000: 59900 (*not NRES 12500*)
- NS 30000: 59900
- NUCL 10000: 59900
- NUTR 10000: 59900
- OBHR 10000: 59900
- OLS 10000: 59900
- PHYS 30000: 59900
- STAT 10000: 59900
- SYS 10000: 59900
- TDM 10000: 59900
- TLI 10000: 59900
- VIP 10000: 59900 (*except VIP 17911, VIP 17912*)

## General Education Electives (18 credits)

*At least 6 credits from Non-Introductory (30000-level or above OR from courses with a required pre-requisite in the same department.)*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00
- General Education V - Credit Hours: 3.00-5.00
- AAE Communications Rule - Credit Hours: 3.00 (Meets 3.00 credit for Non-Introductory Course)

## AAE Communications Rule (3 credits)

### **Non-Introductory Courses**

- AFT 47100 - National Security/Commissioning Preparation I

- AFT 48100 - National Security/Commissioning Preparation II
- COM 31400 - Advanced Presentational Speaking
- COM 31500 - Speech Communication Of Technical Information
- COM 31800 - Principles Of Persuasion
- COM 32400 - Introduction To Organizational Communication
- COM 32500 - Interviewing: Principles And Practice
- COM 35300 - Problems In Public Relations
- COM 41500 - Discussion Of Technical Problems
- COM 43500 - Communication And Emerging Technologies
- ENGL 32200 - Word, Image, Media
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- ENGL 42400 - Writing For High Technology Industries
- ENGL 43300 - Writing Proposals And Grants
- MSL 30200 - Applied Leadership In Small Unit Operations
- NS 41300 - Naval Leadership And Ethics

## General Education Electives (15 credits)

### Introductory Courses

- AAS 10000:29900
- AD 10000:29900
- 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
- AGR 20100 - Communicating Across Culture
- AGRY 12500 - Environmental Science And Conservation
- AGRY 28500 - World Crop Adaptation And Distribution
- AMST 10000:29900
- ANTH 10000:29900
- ARAB 10000:29900
- ASAM 10000:29900
- ASEC 10000:29900
- ASL 10000:29900
- CHNS 10000:29900
- CLCS 10000:29900
- CMPL 10000:29900
- COM 10000:29900
- CSR 10300 - Introduction To Personal Finance
- CSR 28200 - Customer Relations Management
- EAPS 12500 - Environmental Science And Conservation
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education
- EDST 20010 - Educational Policies And Laws
- ECON 10000:29900

- EDPS 10000:29900
- ENGL 10000:29900
- FNR 12500 - Environmental Science And Conservation
- FR 10000:29900
- FVS 10000:29900
- GER 10000:29900
- GREK 10000:29900
- GSLA 10000:29900
- HDFS 10000:29900
- HEBR 10000:29900
- HIST 10000:29900
- HONR 19903 - Interdisciplinary Approaches In Writing
- HORT 27000 - Floral Design And Interior Plant Management
- IDIS 10000:29900
- ITAL 10000:29900
- JPNS 10000:29900
- JWST 10000:29900
- LALS 10000:29900
- LATN 10000:29900
- LC 10000:29900
- LING 10000:29900
- MARS 10000:29900
- MUS 10000:29900
- LA 16100 - Land And Society
- NRES 12500 - Environmental Science And Conservation
- PHIL 10000:29900
- POL 10000:29900
- PSY 10000:29900
- PTGS 10000:29900
- REL 10000:29900
- RUSS 10000:29900
- PUBH 20200 - Health In The Time Of Pandemics: An Introduction
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- SCLA 20000 - Cornerstones In Constitutional Law
- SLHS 10000:29900
- SOC 10000:29900
- SPAN 10000:29900
- THTR 10000:29900
- WGSS 10000:29900
- TECH 12000 - Design Thinking In Technology

## Non-Introductory Courses

- AFT 47100 - National Security/Commissioning Preparation I
- AAS 30000:59900
- AD 30000:59900
- AFT 48100 - National Security/Commissioning Preparation II



- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 45000 - International Agricultural Trade
- AMST 30000:59900
- ANTH 30000:59900
- ARAB 30000:59900
- ASAM 30000:59900
- ASEC 30000:59900
- ASL 30000:59900
- CHNS 30000:59900
- CLCS 30000:59900
- CMPL 30000:59900
- COM 30000:59900
- CSR 30900 - Leadership Strategies
- CSR 33100 - Consumer Behavior
- CSR 34200 - Personal Finance
- CSR 39000 - Undergraduate Special Problems - Title: Japanese Style
- DANC 37800 - Survey Of Concert Dance History
- ECON 30000:59900
- EDPS 30000:59900
- ENGL 30000:59900
- FR 30000:59900
- FS 47000 - Wine Appreciation
- FVS 30000:59900
- GER 30000:59900
- GREK 30000:59900
- GSLA 30000:59900
- HDFS 30000:59900
- HEBR 30000:59900
- HIST 30000:59900
- HONR 46000 - Technological Justice
- HORT 30600 - History Of Horticulture
- HTM 37200 - Global Tourism Geography
- IDIS 10000:59900
- ITAL 30000:59900
- JPNS 30000:59900
- JWST 30000:59900
- LALS 30000:59900
- LATN 30000:59900
- LC 30000:59900
- LING 30000:59900
- MSL 30200 - Applied Leadership In Small Unit Operations \* Army ROTC cadets only
- MARS 30000:59900
- MUS 30000:59900
- NS 41300 - Naval Leadership And Ethics
- PHIL 30000:59900

- POL 30000:59900
- PSY 30000:59900
- PTGS 30000:59900
- REL 30000:59900
- RUSS 30000:59900
- SCLA 10200 - Transformative Texts, Critical Thinking And Communication II: Modern World
- SFS 30200 - Principles Of Sustainability
- SLHS 30000:59900
- SOC 30000:59900
- SPAN 30000:59900
- TECH 33000 - Technology And The Global Society
- THTR 30000:59900
- WGSS 30000:59900

## General Education Elective III for UCC Science Technology and Society - Credit Hours: 1.00-3.00

- ABE 22600: Does not double count
  - ABE 29000: Does not double count
  - AGRY 29000: Does not double count
  - ASM 23600: Does not double count
  - BCM 10001: Does not double count
  - CM 10000: Does not double count
  - CS 10100: Does not double count
  - CS 10100: Does not double count
  - EPCS 11100: Does not double count
  - EPCS 12100: Does not double count
  - HONR 19901 (Fall 2018 and earlier ONLY) Does not double count
  - IT 22600: Does not double count
  - ME 29000: Does not double count
  - SA 10202: Does not double count
  - VIP 17911 (Fall 2021 and after only): Does not double count
- 
- AD 39500: (Fall 2021 and after only) Non-Intro General Education elective
  - AMST 31000: Non-Intro General Education elective
  - AMST 32500: Non-Intro General Education elective
  - ASEC 35500: Non-Intro General Education elective
  - HIST 30305: Non-Intro General Education elective
  - HIST 30605: Non-Intro General Education elective
  - HIST 31305: Non-Intro General Education elective
  - HIST 31405: Non-Intro General Education elective
  - HIST 33205: Non-Intro General Education elective
  - HIST 33300: Non-Intro General Education elective
  - HIST 33400: Non-Intro General Education elective
  - HIST 35000: Non-Intro General Education elective
  - HIST 35205: Non-Intro General Education elective

- HIST 36305: Non-Intro General Education elective
- HIST 38001: Non-Intro General Education elective
- HIST 38400: Non-Intro General Education elective
- HIST 38700: Non-Intro General Education elective
- HONR 46000 (Fall 2022 and after only) Non-Intro General Education elective
- HORT 30600: Non-Intro General Education elective
- SLHS 30900: Non-Intro General Education elective
- SOC 33500 (Fall 2021 and after only) Non-Intro General Education elective
- YDAE 35500 (Summer 2019 and before only. Effective Fall 2019, YDAE is now ASEC) Non-Intro General Education elective

- AGRY 12500: General Education elective
- AGRY 28500: General Education elective
- ANTH 21000: General Education elective
- COM 25100: General Education elective
- COM 25100: General Education elective
- EAPS 12500: General Education elective
- ENGL 22300: General Education elective
- ENGL 22600: General Education elective
- ENGL 23400: General Education elective
- LA 16100: General Education elective
- NRES 12500: General Education elective
- PHIL 20700 : General Education elective
- PHIL 20800 (Fall 2022 and after only) General Education elective
- PHIL 22100: General Education elective
- PHIL 27000: General Education elective
- POL 22300: General Education elective
- POL 23700: General Education elective
- PUBH 20200 (Fall 2020 and after only): General Education elective
- SLHS 11500: General Education elective
- SLHS 21500: General Education elective
- TECH 12000 (Fall 2013 and after only): General Education elective

- ANSC 10200: Technical elective
- BCHM 10000: Technical elective
- BIOL 12100: Technical elective
- BIOL 31200 (Fall 2015 and earlier only) Technical elective
- BTNY 20100: Technical elective
- BTNY 21100: Technical elective
- BTNY 28500: Technical elective
- CE 35500 (Fall 2021 and after only) Technical elective
- CGT 17208 (Fall 2022 and after only) Technical elective
- EAPS 10000: Technical elective
- EAPS 10400: Technical elective
- EAPS 10600: Technical elective
- EAPS 11300: Technical elective

- EAPS 12000: Technical elective
- EAPS 12900: Technical elective
- EAPS 20000: Technical elective
- EEE 35500 (Fall 2020 and after only) Technical elective
- ENGR 20100 (Summer 2016 and earlier only, course renumbered to ENGR 31000) Technical elective
- ENGR 27920 (Fall 2020 only, course prefix changed to VIP) Technical elective
- ENGR 31000 (Fall 2016 and after only, course renumbered from ENGR 20100) Technical elective
- ENGR 37920 (Fall 2020 only, course prefix changed to VIP) Technical elective
- ENGR 47920 (Fall 2020 only, course prefix changed to VIP) Technical elective
- ENTM 10500: Technical elective
- ENTM 12800: Technical elective
- ENTM 21800 (Fall 2014 and earlier only) Technical elective
- EPCS 10100: Technical elective
- EPCS 10200: Technical elective
- EPCS 20100: Technical elective
- EPCS 20200: Technical elective
- EPCS 30100: Technical elective
- EPCS 30200: Technical elective
- EPCS 40100: Technical elective
- EPCS 40200: Technical elective
- FNR 10300: Technical elective
- FNR 12500: Technical elective
- FNR 22310: Technical elective
- FNR 23000: Technical elective
- FNR 24000: Technical elective
- FS 16100: Technical elective
- HORT 12100: Technical elective
- HSCI 20100: Technical elective
- HSCI 20200: Technical elective
- NRES 29000: Technical elective
- NUTR 39800: Technical elective
- STAT 11300: Technical elective
- SYS 30000: Technical elective
- SYS 35000 ( Summer 2021 and earlier only) Technical elective or AAE Specialization/Selective
- SYS 40000 (Fall 2021 and after only) Technical elective or AAE Specialization/Selective
- VIP 17920 (Fall 2021 and after only): Technical elective
- VIP 27920 (Spring 2021 and after only): Technical elective
- VIP 37920 (Spring 2021 and after only): Technical elective
- VIP 47920 (Spring 2021 and after only): Technical elective

## **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 the Weldon School of 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 of biomedical data, molecular transport, biomechanics, human physiology, and biomedical systems and instrumentation. Essential experiential and practical training includes small group problem-based and inquiry-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 of the Weldon School of Biomedical Engineering is the Martin C. Jischke Hall of Biomedical Engineering (MJIS), a \$25M, 91,000 sq. ft. facility opened in 2006. This state-of-the-art building is specifically designed to enhance both teaching and research. In 2019, an \$18M, 30,000 sq. ft. Innovation Wing was added to support 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](mailto:WeldonBME@purdue.edu)  
Weldon BME Undergraduate Program  
BME Undergraduate Webpage

[WeldonBMEUndergrad@purdue.edu](mailto: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.

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.

For more information, please refer to the Purdue BME website.

Biomedical Engineering Major Change (CODO) Requirements

### Degree Requirements

## 130 Credits Required

### Biomedical Engineering Major Requirements (60-64 credits)

*All major required courses below are included in the calculation of the BME major GPA requirement: 2.0*

### Biomedical Engineering Major Required Courses (36 credits)

- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications ♦
- BME 20500 - Biomolecular And Cellular Systems Laboratory ♦
- BME 20600 - Biomechanics And Biomaterials Laboratory ♦
- BME 20700 - Bioinstrumentation And Circuit Theory ♦
- BME 21400 - Introduction To Biomechanical Analysis ♦
- BME 25600 - Physiological Modeling In Human Health ♦
- BME 29000 - Frontiers In Biomedical Engineering
- BME 38000 - Professionalization In Biomedical Engineering
- BME 38900 - Junior Experimental Design Laboratory

- BME 39000 - Professional Development And Design In Biomedical Engineering
- BME 48901 - Senior Design Project
- BME 49000 - Professional Elements Of Design
- BME 29500 - Selected Topics In Biomedical Engineering (Title: Thermodynamics In Biol Sys II) - Credit Hours: 3.00 ♦ or
- ME 20000 - Thermodynamics I ♦
- **BME Depth Area Selectives** (Choose 3) - Credit Hours: 9.00
- BME 30100 - Bioelectricity
- BME 30400 - Biomedical Transport Fundamentals
- BME 31400 - Experimental Methods In Biomechanics
- BME 35600 - Mathematical Models And Methods In Physiology
- BME 36000 - Introduction To Biomedical Imaging
- BME 36600 - Foundations Of Biomedical Data Science
- ECE 30100 - Signals And Systems

## Other Departmental Major Required Courses (24-29 credits)

- BIOL 23000 - Biology Of The Living Cell ♦
- CHM 11600 - General Chemistry ♦ or
- CHM 13600 - General Chemistry Honors ♦ \* CHM 11600 or CHM 13600 is strongly recommended to be taken in First Year Engineering to satisfy FYE Requirement #7.
- CS 15900 - C Programming ♦ (if not taken in First-Year Engineering) or
- CS 17600 - Data Engineering In Python ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 26100 - Multivariate Calculus ♦ or
- MA 27101 - Honors 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 ♦
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods ♦

## Other Departmental/Program Course Requirements (68-78 credits)

### First Year Engineering Requirements (29-39 credits)

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)

- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Departmental Requirements (21 credits)

### **Life Science Selectives - Credit Hours: 6.00**

- Life Science Selective I - Credit Hours: 3.00
- Life Science Selective II - Credit Hours: 3.00

### **Technical Engineering Selectives - Credit Hours: 15.00**

- Technical Engineering Selective I - Credit Hours: 3.00
- Technical Engineering Selective II - Credit Hours: 3.00
- Technical Engineering Selective III (Quantitative Breadth) - Credit Hours: 3.00
- Technical Engineering Selective IV (Data Science focused Quantitative Breadth) - Credit Hours: 3.00
- Technical Engineering Selective V (BME 40000-49999) - Credit Hours: 3.00 (except BME 49800)

*See Supplemental Information for requirements.*

## General Education Electives (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 - Ethics and Policy Healthcare Selective - Credit Hours: 3.00 (C- or better)
- General Education V - Credit Hours: 3.00 (30000+ level/Upper level)
- General Education VI - Credit Hours: 3.00 (30000+ level/Upper level)

(General Education for Written & Oral Communication may be met in First-Year Engineering - Credit Hours: 6.00-7.00)

UCC requirements may be met in this area.

## Supplemental List

Biomedical Engineering Supplemental Information

## Electives (5 credits)

- Electives - Credit Hours: 5.00

## Supplemental List

Biomedical Engineering Supplemental Information



## Grade Requirements

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

## GPA Requirements

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

## Course Requirements and Notes

- See the No Count List in BME Supplemental Information for courses that cannot be used to satisfy any BME major requirements, and the General Education No Count List for additional courses that cannot be used to satisfy any General Education Selective

## Pass/No Pass Policy

BME does not allow students to use courses with Pass/No Pass grades.

## Transfer Credit Policy

Transfer credit including pass/no pass and undistributed credit can be use for the appropriate category at departmental discretion.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency [website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Biomedical Engineering Plan of Study

### Fall 2nd Year

- BIOL 23000 - Biology Of The Living Cell ♦
- BME 20500 - Biomolecular And Cellular Systems Laboratory ♦
- BME 21400 - Introduction To Biomechanical Analysis ♦
- BME 29000 - Frontiers In Biomedical Engineering
- MA 26100 - Multivariate Calculus ♦ or
- MA 27101 - Honors Multivariate Calculus ♦
- CS 15900 - C Programming ♦ or
- CS 17600 - Data Engineering In Python ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 24100 - Electricity And Optics ♦ or
- PHYS 27200 - Electric And Magnetic Interactions ♦

18-21 Credits

### Spring 2nd Year

- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications ♦
- BME 20600 - Biomechanics And Biomaterials Laboratory ♦
- BME 20700 - Bioinstrumentation And Circuit Theory ♦
- BME 25600 - Physiological Modeling In Human Health ♦
- BME 29500 - Selected Topics In Biomedical Engineering (Title: Thermodynamics In Biol Sys II) - Credit hours: 3.00 ♦ or
- ME 20000 - Thermodynamics I ♦
- MA 26200 - Linear Algebra And Differential Equations ♦  
OR
- MA 26500 - Linear Algebra ♦ and
- MA 26600 - Ordinary Differential Equations ♦

17-19 Credits

### Fall 3rd Year

- BME 38000 - Professionalization In Biomedical Engineering
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods ♦ (preferred for BME)
- BME Depth Area Selective I - Credit Hours: 3.00
- BME Depth Area Selective II - Credit Hours: 3.00
- Technical Engineering Selective I - Credit Hours: 3.00
- General Education Selective I - Ethics and Policy Healthcare - Credit Hours: 3.00

## 16 Credits

### Spring 3rd Year

- BME 38900 - Junior Experimental Design Laboratory
- BME 39000 - Professional Development And Design In Biomedical Engineering
- Technical Engineering Selective II - Credit Hours: 3.00
- BME Depth Area Selective III - Credit Hours: 3.00
- General Education Selective II - Credit Hours: 3.00
- General Education Selective III - Credit Hours: 3.00

## 16 Credits

### Fall 4th Year

- BME 48901 - Senior Design Project
- BME 49000 - Professional Elements Of Design
- Technical Engineering Selective III (Quantitative Breadth) - Credit Hours: 3.00
- Life Science Selective I - Credit Hours: 3.00
- General Education Selective IV - Credit Hours: 3.00
- General Education Selective V - Credit Hours: 3.00

## 16 Credits

### Spring 4th Year

- Technical Engineering Selective IV (Data Science Focused Quantitative Breadth) - Credit Hours: 3.00
- Technical Engineering Selective V (BME 40000-49999) - Credit Hours: 3.00
- Life Science Selective II - Credit Hours: 3.00
- General Education Selective VI - Credit Hours: 3.00
- Elective - Credit Hours: 5.00

## 17 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

# Biomedical Engineering Supplemental Information

## Biomedical Engineering Selectives

Below are the lists of courses approved to fulfill the following requirements in the Biomedical Engineering BS program:

- Life Science Requirements (6 credits)
- Technical Engineering Requirements (15 credits)
- General Education Requirements (18 credits)

## Life Science Selectives (6 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, pre-requisites, and course offering rotation. In some cases an override may have to be requested.

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

- AGRY 32000 - Genetics
- BCHM 30700 - Biochemistry
- BCHM 42100 - R For Molecular Biosciences
- BCHM 42200 - Computational Genomics
- BCHM 43400 - Medical Topics In Biochemistry
- BCHM 46200 - Metabolism
- BCHM 53600 - Biological And Structural Aspects Of Drug Design And Action
- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- BIOL 20300 - Human Anatomy And Physiology
- BIOL 20400 - Human Anatomy And Physiology
- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 44400 - Human Genetics

- BIOL 47800 - Introduction To Bioinformatics
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 53300 - Medical Microbiology
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 59500 - Special Assignments Title: Neurobiol Learning & Memory
- BMS 53400 - Systemic Mammalian Physiology
- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry I
- CHM 37400 - Physical Chemistry II
- CHM 43800 - Introduction To Molecular Biotechnology
- CHM 57900 - Computational Chemistry
- HK 30200 - Applied Clinical Anatomy
- HK 30800 - Athletic Health Care
- HK 59000 - Special Topics In Health And Kinesiology Title: Neuroscience of Mvmt Disorders
- HSCI 30500 - Basics Of Oncology
- HSCI 33300 - Introduction To Immunology
- HSCI 42000 - Applied Anatomy For Medicine
- HSCI 53400 - Applied Health Physics
- HSCI 54700 - Fundamentals Of Epidemiology
- HSCI 56000 - Toxicology
- HSCI 57500 - Introduction To Environmental Health
- IPPH 58300 - Advanced Biopharmaceutics
- MCMP 42200 - Immunology
- MCMP 57000 - Basic Principles Of Chemical Action On Biological Systems
- PUBH 40000 - Human Diseases And Disorders
- PUBH 40500 - Principles Of Epidemiology
- SLHS 30100 - Introduction To Cognitive Neuroscience
- SLHS 30200 - Hearing Science
- SLHS 30300 - Anatomy And Physiology Of The Speech Mechanism
- SLHS 41900 - Topics In Audiology And Speech Pathology Titles: End of Life Care and Management; Intro to Hearing Loss; Intro to Neurodegen Disorders
- SLHS 50100 - Neural Bases Of Speech And Hearing
- SLHS 56100 - Medical Audiology

## Technical Engineering Selectives (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 Selective Policy:

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

- Two 3-credit hour Quantitative Breadth (QB) courses, one of which must be a Data Science-focused QB course.
- A maximum of six credit hours may be taken 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 Engineering Selective 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 Selective can count toward the Technical Engineering Selective requirement.
- Students enrolling in a BME course cross-listed with another department should register for the BME section on myPurdue

## Quantitative Breadth Selectives List (6 credits)

Choose one course from the Data Science-Focused Quantitative Breadth (QB) course list, and a second one from either QB list.

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

- BME 36600 - Foundations Of Biomedical Data Science
- BME 40100 - Mathematical & Computational Analysis Of Complex System Dynamics In Biology, Medicine, & Healthcare
- BME 45000 - Deep Learning For Medical Imaging
- BME 50100 - Multivariate Analyses In Biostatistics
- BME 51100 - Biomedical Signal Processing
- BME 59500 - Selected Topics In Biomedical Engineering
  - 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 Quantitative Breadth Courses:

- ABE 30100 - Numerical And Computational Modeling In Biological Engineering
- ABE 45000 - Finite Element Method In Design And Optimization
- BME 30400 - Biomedical Transport Fundamentals
- BME 31400 - Experimental Methods In Biomechanics
- BME 35600 - Mathematical Models And Methods In Physiology
- BME 36000 - Introduction To Biomedical Imaging
- BME 44000 - Computational Mechanics In Biomedical Engineering
- BME 59500 - Selected Topics In Biomedical Engineering Title: Continuum Models Biomed Engr
- CHE 45600 - Process Dynamics And Control
- ECE 30100 - Signals And Systems

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 30411 - Electromagnetics I
- IE 53300 - Industrial Applications Of Statistics
- MA 41600 - Probability
- ME 30000 - Thermodynamics II
- ME 30800 - Fluid Mechanics
- ME 50900 - Intermediate Fluid Mechanics
- ME 57700 - Human Motion Kinetics
- NUCL 57000 - Fuzzy Approaches In Engineering
- STAT 41600 - Probability

## Other Technical Engineering Selectives

- AAE 50700 - Principles Of Dynamics
- ABE 37000 - Biological/Microbial Kinetics And Reaction Engineering
- ABE 44000 - Cell And Molecular Design Principles
- BME 41000 - Neural Engineering
- BME 46000 - Cardiovascular Mechanical Support And Devices
- BME 47000 - Biomolecular Engineering
- BME 49500 - Selected Topics In Biomedical Engineering Titles: 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 55500 - Magnetic Resonance Imaging Theory
- BME 55600 - Introduction To Clinical Medicine For Engineering Solutions
- BME 58100 - Bio-Micro-Electro-Mechanical Systems (BioMEMS) & Biomedical Microsystems
- BME 58300 - Biomaterials
- BME 59500 - Selected Topics In Biomedical Engineering
  - Bioelectronics
  - Biophotonics: Fundamentals
  - Cell & Tissue Mechanics
  - Deep Learning
  - Design Of Mobile Robots
  - Electromechanical Robotic Sys
  - Functional MRI Applications
  - Functional Neuroimaging
  - Healthcare Systems Engineering
  - Implantable Medical Devices
  - Light Tissue Interactions
  - Med Img & Diagnostic Tech
  - Molecular & Cell Biomechanics
  - Neural Mech Health & Disease
  - Point Of Care Diagnostics
  - Polymeric Biomaterials
  - Principles Of Tissue Engr
  - Regenerative Biol/Tiss Repair



- CHE 34800 - Chemical Reaction Engineering
- CHE 52500 - Biochemical Engineering
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- 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
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition
- ECE 30412 - Electromagnetics II
- 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 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 47300 - Introduction To Artificial Intelligence
- ECE 50653 - Fundamentals Of Nanoelectronics
- ECE 51100 - Psychophysics
- HSCI 31200 - Radiation Science Fundamentals
- HSCI 59000 - Special Topics Titles: Advanced MR Imaging; Basics Of ME Spectroscopy
- 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 Titles: Assistive Technology Practice; Human Factor & Medical Devices
- MA 34100 - Foundations Of Analysis
- 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 48900 - Introduction To Finite Element Analysis
- ME 50500 - Intermediate Heat Transfer
- ME 50700 - Laser Processing
- ME 51300 - Engineering Acoustics
- ME 55600 - Lubrication, Friction & Wear
- ME 55900 - Micromechanics Of Materials
- ME 56200 - Advanced Dynamics
- ME 58600 - Microprocessors In Electromechanical Systems
- ME 58800 - Mechatronics - Integrated Design Of Electro-Mechanical Systems
- MSE 33000 - Processing And Properties Of Materials

- MSE 38200 - Mechanical Response Of Materials
  - MSE 52700 - Introduction To Biomaterials
  - MSE 56200 - Soft Materials
  - MSE 57600 - Corrosion
  - NUCL 30000 - Nuclear Structure And Radiation Interactions
  - NUCL 47000 - Fuel Cell Engineering
  - NUCL 59700 - Selected Topics In Nuclear Engineering I Title: Introduction To Bioelectrics
  - STAT 51300 - Statistical Quality Control
- One 3-credit course of the Technical Engineering Selective 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 49800 research for credit (with research syllabus). This cannot be used to satisfy the 400-level BME Technical Elective requirement.

## Regulatory Selectives List

Optional. Only one Regulatory Selective can count toward the Technical Engineering Selectives requirements.

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

## General Education Selectives (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 - Ethics and Policy Healthcare Selective - Credit Hours: 3.00 (C- or better)
- General Education V - Credit Hours: 3.00 (30000+ level/Upper level)
- General Education VI - Credit Hours: 3.00 (30000+ level/Upper level)

General Education for Written & Oral Communication are met in First-Year Engineering - Credit Hours: 6.00-7.00

General Education Courses can be used to meet Univeristy Core Requirements.

- BME Undergraduate students must complete 24 credits of general education. 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.
- Many courses count for both General Education and Univeristy 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.

The following requirements must be met:

- 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 12 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 departments. 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 Selective (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
- PSY 58100 - Neuroethics
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare

## Liberal Arts/Management/Honors (12 Credits)

At least 12 credits\* must be taken inside the College of Liberal Arts, the Krannert School of Management and/or the Honors College. This includes courses with the following departmental prefixes:

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

\* 6-7 credits may be fulfilled by the Written and Oral Communication requirements of First Year Engineering.

## Additional General Education Selectives (9 credits)

An additional 9 credits must be taken from either the departments in the Liberal Arts/Management/Honors list, or from the following additional departments:

AGEC, CSR, EDCI, EDPS, EDST, ENTR, HDFS, PSY, SLHS

## General Education No Count List

The following courses may not be used to satisfy any General Education Selectives for the Bachelor of Science in Biomedical Engineering:

- AGECE 29800 - Sophomore Seminar
- AGECE 35200 - Quantitative Techniques For Firm Decision Making
- AGECE 45100 - Applied Econometrics

- ANTH 30600 - Quantitative Methods For Anthropological Research
- ANTH 42800 - Field Methods In Archaeology
- ANTH 43800 - Field Methods In Biological Anthropology
- ANTH 49700 - Senior Honors Seminar
- ECON 37300 - Computational Economics
- ECON 46300 - Advanced Data Analysis And Machine Learning
- EDCI 22200 - Knowing The World Through Mathematics
- EDCI 22550 - Mathematics Education Seminar
- EDCI 36400 - Mathematics In The Elementary School
- EDCI 36401 - Teaching Mathematics In K-2
- EDCI 36402 - Teaching Mathematics In Grades 3-6
- EDCI 36500 - Science In The Elementary School
- EDCI 36501 - Teaching Science Through Design In Grades K-2
- EDCI 36502 - Teaching Science Through Design In Grades 3-6
- 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 Secondary Mathematics - Methods I
- EDCI 42600 - Teaching Of Secondary Mathematics - Methods II
- EDCI 42800 - Teaching Science In The Middle And Junior High School
- HDFS 40600 - Mathematics In Preschool And Primary Grades
- HDFS 40900 - Science In Preschool And Primary Grades
- MGMT 38800 - Python For Business
- MGMT 47400 - Predictive Analytics
- MGMT 47500 - Machine Learning For Business
- PSY 20100 - Introduction To Statistics In Psychology
- PSY 20300 - Introduction To Research Methods In Psychology
- PSY 30500 - Understanding And Analyzing Psychological Data
- PSY 30600 - Understanding And Analyzing Experiments
- PSY 39000 - Research Experience In Psychology
- SOC 38200 - Introduction To Statistics In Sociology
- SOC 38300 - Introduction To Research Methods In Sociology
- SLHS 30200 - Hearing Science
- SLHS 30300 - Anatomy And Physiology Of The Speech Mechanism
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SLHS 50100 - Neural Bases Of Speech And Hearing
- SLHS 56100 - Medical Audiology
- SLHS 30100 - Introduction To Cognitive Neuroscience

## No Count List - BSBME

The following courses may not be used to satisfy any requirement of the Bachelor of Science in Biomedical Engineering:

- Any undistributed credit
- Any class taken for a Pass/No Pass grade
- Any BAND class
- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II

- DANC 24500 - Practicum In Dance Performance And Production
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 11100 - American Language And Culture For International Students II
- 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 15555 - Quantitative Reasoning
- MA 15800 - Precalculus - Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- STAT 30100 - Elementary Statistical Methods
- THTR 33600 - Rehearsal And Performance II

## Davidson 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

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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.

Davidson School of Chemical Engineering

Chemical Engineering Major Change (CODO) Requirements

## Degree Requirements

# 130 Credits Required

## Major Required Courses (46 credits)

*CHE 20500 requires a minimum grade of a C or higher. All other Chemical Engineering Core courses require a minimum grade of a C-.*

- CHE 20000 - Chemical Engineering Seminar
- CHE 20500 - Chemical Engineering Calculations (Must be C or better)
- 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 Selective - Credit Hours: 3.00 (see Supplemental Information)

## Optional Concentrations

- Biological Engineering Concentration in Chemical Engineering
- Data Science Concentration in Chemical Engineering
- Energy and The Environment Concentration in Chemical Engineering
- Materials and Polymers Concentration in Chemical Engineering
- Pharmaceutical Engineering Concentration in Chemical Engineering
- Research in Chemical Engineering Concentration

## Other Departmental/Program Requirements (87-97 credits)

### First-Year Engineering Requirements (29-39 credits)

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.

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Departmental Courses (36-40 credits)

- CHM 11600 - General Chemistry ♦ (if not taken in FYE)  
**ChE Science, Technology, Engineering and Math Core**
  - CHM 26100 - Organic Chemistry I ♦
  - CHM 26300 - Organic Chemistry Laboratory I ♦
  - CHM 26200 - Organic Chemistry II ♦
  - CHM 26400 - Organic Chemistry Laboratory II ♦
  - CHM 37000 - Topics In Physical Chemistry ♦
  - PHYS 24100 - Electricity And Optics ♦
  - MA 26100 - Multivariate Calculus
  - Math Selective I - Credit Hours: 3.00
  - Math Selective II - Credit Hours: 3.00
  - Biology Selective - Credit Hours: 3.00
  - Engineering Selective I - Credit Hours: 3.00
  - Engineering Selective II - Credit Hours: 3.00
  - Technical Selective - Credit Hours: 3.00
- See Supplemental Information for selective lists*

### General Education Requirements (18 credits)

- General Education I (Human Cultures: Behavioral/Social Sciences) - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II (Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III (Science, Technology & Society) - Credit Hours: 1.00-3.00 (satisfies Science, Technology, & Society for core)
- General Education IV - Credit Hours: 3.00
- General Education V (Upper level) - Credit Hours: 3.00



- General Education VI (Upper level) - Credit Hours: 3.00
  - General Education IV = complete any course from the approved subjects below provided the course is open to students in the offering department and the student qualifies to take the course.
  - General Education V and VI (Upper level) = complete courses from the approved subjects below at the 30000+level courses or courses with required pre-requisite in the same department.

Approved subjects in College of Liberal Arts, School of Management, and/or Honors College include:

AAS, AD, AGECE, AMST, ANTH, ARAB, ASAM, ASL, CHNS, CLCS, CMPL, COM, CSR, DANC, ECON, EDPS, ENGL, ENTR, FLL/LC, FR, FS, GER, GREK, HDFS, HEBR, HIST, HONR, IDIS, ITAL, JWST, JPNS, LALS, LATN, LING, MARS, MGMT, MUS, OBHR, PHIL, POL, PSY, PTGS, REL, RUSS, SLHS, SOC, SPAN, THTR, TLI, WGSS and NUTR 30300.

## Electives - Credit Hours: 0.00-12.00

- Electives - Credit Hours: 0.00-12.00

*(Electives may be needed to complete 130 credits based on courses taken and requirements that they fulfill) -see notes*

## Supplemental List

- Chemical Engineering Supplemental Information

## Optional Concentrations for Chemical Engineering

- Biological Engineering Concentration
- Data Science Concentration
- Research in Chemical Engineering Concentration
- Energy and the Environment Concentration
- Materials and Polymers Concentration
- Pharmaceutical Engineering Concentration

## Grade Requirements

- 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).

## GPA Requirements

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

## Course Requirements and Notes

- 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.
- Electives may need to be taken to reach 130 credits for the degree if STS course is taken that also completes Engineering Selective or Technical Elective.
- Electives may need to be taken to reach 130 credits for the degree if HUM/BSS/STS course also fulfills General Education Upper-level Selective.

## Pass/No Pass Policy

- Students may take the ChE General Education Selective Core courses for a letter grade or pass/ no pass option.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement #7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Chemical Engineering Plan of Study

### Fall 2nd Year

- CHE 20000 - Chemical Engineering Seminar
- CHE 20500 - Chemical Engineering Calculations

- CHM 26100 - Organic Chemistry I ♦ (CHM 11600 should be taken in FYE to fulfill the pre-req for CHM 26100))
- CHM 26300 - Organic Chemistry Laboratory I ♦
- 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 II ♦
- CHM 26400 - Organic Chemistry Laboratory II ♦
- Math Selective I - Credit Hours: 3.00
- General Education I (Human Cultures: Behavioral/Social Sciences) - 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 I - Credit Hours: 3.00
- Technical Selective - Credit Hours: 3.00
- General Education II (Human Cultures: Humanities) - 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
- General Education III (Science, Technology & Society) - Credit Hours: 1.00-3.00&nbsp;
- General Education IV - Credit Hours: 3.00

## 15-18 Credits

### Spring 4th Year

- CHE 45000 - Design And Analysis Of Processing Systems
- Chemical Engineering Selective - Credit Hours: 3.00
- Engineering Selective II - Credit Hours: 3.00
- General Education V (Upper level) - Credit Hours: 3.00
- General Education VI (Upper level) - Credit Hours: 3.00
- Elective - Credit Hours: 0.00 or more  
*(Electives may be needed to complete 130 credits based on courses taken and requirements that they fulfill)*

## 16 Credits

### Pre-Requisite Information

For pre-requisite information, click [here](#).

### 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

### **Biological Engineering Concentration in Chemical Engineering**

Biological Engineering Concentration (9 credits)

**9 credits required:**

- At least 3 credits from Engineering courses (ABE/BME/CHE/ME)

- At least 3 credits from CHE Courses

- ABE 58000 - Process Engineering Of Renewable Resources or
- CHE 52500 - Biochemical Engineering
- BCHM 56100 - General Biochemistry I
- BME 49500 - Selected Topics In Biomedical Engineering (Titles: Biomolecular Engineering; Computational Cell Biology)
- BME 52100 - Biosensors: Fundamentals And Applications
- BME 55100 - Tissue Engineering or
- CHE 52100 - Principles Of Tissue Engineering
- CHE 41100 - ChE Undergraduate Research or
- CHE 49800 - Undergraduate Thesis Research I
- CHE 52300 - Engineering Applications Of Biological Molecules
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering (Titles: Stem Cell Engineering; Medical Devices; Approaches to Healthcare Delivery)
- CHM 33300 - Principles Of Biochemistry
- CHM 53300 - Introductory Biochemistry
- ME 59700 - Advanced Mechanical Engineering Projects I (Title: Bio-energy and Biofuels)

## **Chemical Engineering Supplemental Information**

### **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 - ChE Undergraduate Research
- 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 52100 - Principles Of Tissue Engineering
- CHE 52300 - Engineering Applications Of Biological Molecules
- 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 55100 - Principles Of Pharmaceutical Engineering
- CHE 55300 - Pharmaceutical Process, Development And Design
- CHE 55400 - Smart Manufacturing In Process Industries
- CHE 55500 - Computer Integrated Process Operations
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 56000 - Introduction To Energy Storage Systems
- CHE 56200 - Battery Systems
- CHE 56400 - Organic Electronic Materials And Devices
- CHE 59700 - Special Topics In Chemical Engineering

**Note:**

- *Students cannot earn credit in both CHE 52500 and ABE 58000.*
- *CHE offers multiple CHE 49700 & 59700 courses which can be identified by course title - please refer to the Schedule of Classes for current course offerings.*
- *CHE 49500 Chemical Engineering Study Abroad does not count for the CHE Elective - rather a Technical Selective or General Education Selective.*
- *3 credits of CHE 41100, 41200, 49800, or 49900 may be used to complete the Chemical Engineering Selective.*

## 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*)

**Note:**

- *CHE 49500 Chemical Engineering Study Abroad does not count for the ENGR Selective - rather a Technical Selective or General Education Selective.*
- *3 credits of CHE 41100, 41200, 49800, or 49900 may be used to complete the Engineering or Technical Selective*

## 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 49500 - 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 21200 - 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
- **Note:**
- 3 credits of CHE 41100, 41200, 49800, or 49900 may be used to complete the Engineering or Technical Selective

## General Education Requirements (18 credits)

- General Education I (Human Cultures: Behavioral/Social Sciences) - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II (Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III (Science, Technology & Society) - Credit Hours: 1.00-3.00 (satisfies Science, Technology, & Society for core)
- General Education IV - Credit Hours: 3.00-5.00
- General Education V (Upper level) - Credit Hours: 3.00
- General Education VI (Upper level) - Credit Hours: 3.00
  - General Education IV = complete any course from the approved subjects below provided the course is open to students in the offering department and the student qualifies to take the course.
  - General Education V and VI (Upper level) = complete courses from the approved subjects below at the 30000+level courses or courses with required pre-requisite in the same department.

Approved subjects in College of Liberal Arts, School of Management, and/or Honors College include:

AAS, AD, AGECE, AMST, ANTH, ARAB, ASAM, ASL, CHNS, CLCS, CMPL, COM, CSR, DANC, ECON, EDPS, ENGL, ENTR, FLL/LC, FR, FS, GER, GREK, HDFS, HEBR, HIST, HONR, IDIS, ITAL, JWST, JPNS, LALS, LATN, LING, MARS, MGMT, MUS, OBHR, PHIL, POL, PSY, PTGS, REL, RUSS, SLHS, SOC, SPAN, THTR, TLI, WGSS and **NUTR 30300 -link to course**

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.

## Data Science Concentration in Chemical Engineering

The optional concentration in Data Science provides interested undergraduate students a way to enhance their degree by combining elements of computer programming, statistics, business and chemical engineering knowledge without impeding on the already rigorous undergraduate curriculum. Interested students will select focused courses (listed above) to fulfill their Technical Engineering Selective (3cr), Engineering Selective(s) (3-6 cr) and Chemical Engineering Selective (3cr) requirements for their BSCHE.

## Data Science Concentration (12 credits)

### Foundational Programming Courses - Choose One (3 credits)

- CS 15900 - C Programming
- CS 17700 - Programming With Multimedia Objects
- CS 18000 - Problem Solving And Object-Oriented Programming

### Data Science Selectives (9 credits)

9 credits total

- 3 credits must be CHE

- 6 credits must be 40000 level or higher

- AAE 55000 - Multidisciplinary Design Optimization
- BIOL 47800 - Introduction To Bioinformatics
- CGT 27000 - Introduction To Data Visualization
- CHE 41100 - ChE Undergraduate Research
- CHE 55500 - Computer Integrated Process Operations
- CHE 59700 - Special Topics In Chemical Engineering (Title: Data Science in ChE)
- ECE 59500 - Selected Topics In Electrical Engineering (Title: Machine Learning) or
- IE 49000 - Special Topics In Industrial Engineering
- ILS 29500 - Special Topics In Information And Data Science (Title: Statistical Learning)
- PHIL 29300 - Selected Topics In Philosophy (Title: Ethics of Data Science)
- STAT 41600 - Probability

## Energy and The Environment Concentration in Chemical Engineering

### Energy and The Environment Concentration (9 credits)

**9 credits required:**

- At least 3 credits from Engineering courses (CE/CHE/EEE/ME/NUCL)

- At least 3 credits from CHE courses

- Additional 3 credits from the list

- 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
- CHE 41100 - ChE Undergraduate Research or
- CHE 49800 - Undergraduate Thesis Research I
- CE 45700 - Air Pollution Control And Design
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 56000 - Introduction To Energy Storage Systems
- CHE 56200 - Battery Systems
- CHE 56400 - Organic Electronic Materials And Devices
- CHE 59700 - Special Topics In Chemical Engineering (Titles: Advanced Solar Energy Conversn; Sys Analysis of Energy Prod; Industrial Chemical Technology; Food & Energy Farms; Sustainable ChE, Systems and Econ for FEW; Dev & Mthd Enrgy Efnt Dist & Separations; Enrgy Productions of Shale Hydrocarbons; Industrial Catalytic Processes)
- ME 41800 - Engineering Of Environmental Systems And Equipment
- ME 59700 - Advanced Mechanical Engineering Projects I (Title: 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

### Materials and Polymers Concentration (9 credits)

**9 credits required:**

- At least 3 credits from Engineering courses (CHE/MSE)

- At least 3 credits from CHE courses

- Additional 3 credits should be taken from the list

- CHE 33000 - Principles Of Molecular Engineering
- CHE 41100 - ChE Undergraduate Research or
- CHE 49800 - Undergraduate Thesis Research I
- CHE 44200 - Chemistry And Engineering Of High Polymers
- CHE 53600 - Particulate Systems
- CHE 54300 - Polymerization Reaction Engineering And Reactor Analysis
- CHE 54400 - Structure And Physical Behavior Of Polymer Systems
- CHE 56400 - Organic Electronic Materials And Devices
- CHE 59700 - Special Topics In Chemical Engineering (Titles: Industrial Chemical Technology and High-Rate Comp Mfg: Engr/Econ)
- 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 (Titles: 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 Chemical Engineering (CHE) course

- CHE 41100 - ChE Undergraduate Research 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 55400 - Smart Manufacturing In Process Industries
- CHE 55500 - Computer Integrated Process Operations
- CHE 59700 - Special Topics In Chemical Engineering (Titles: Industrial Chemical Technology; Medical Devices; Approaches to Healthcare Delivery; Crystallization Systems in Engineering)
- HSOP 50100 - Food And Drug Law I
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes

## **Research in Chemical Engineering Concentration**

### **Research in Chemical Engineering Concentration (9 Credits)**

- CHE 41100 - ChE Undergraduate Research or
- CHE 50000-59999
- CHE 49800 - Undergraduate Thesis Research I
- CHE 49900 - Undergraduate Thesis Research II

**Note:**

Upon completion of the concentration, students will be awarded ChE Departmental Honors.

## **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  
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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.

Purdue civil engineers are shaping the world! From the communities we live in, to the air we breathe and water we drink, civil engineers are constantly working to make the planet a better place to live.

Civil engineering is a diverse and incredibly wide-reaching field that affects nearly every facet of our lives. Civil engineers are the creators of our built environment. They design our skyscrapers and stadiums, expand our harbors and ports, provide us access to energy, and ensure safe travel across our bridges and through our airports.

Civil engineers are also stewards of our natural environment. They study weather shifts, ocean coasts, and wetlands to ensure our ecosystems are sustained. They work to improve air quality and ensure everyone has access to clean water.

Innovation is synonymous with civil engineering. As the world becomes more digital, so have we. Civil engineers are designing smart, sustainable, self-regulating buildings; they are harnessing heat and vibration by converting them to electricity; and are designing roads that will charge electric vehicles.

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, geomatics, 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 and hydrology, materials, structures, and transportation and infrastructure systems engineering.

A **Senior Design Capstone** course culminates undergraduate students' academic careers. This course allows students to connect with real-world projects and develop and build skills such as problem solving, engineering design, teamwork, communication, project management, and project planning. Student teams act as their own engineering companies and present their work throughout the semester via presentations and written reports.

**Experiential learning** opportunities within Civil Engineering are encouraged and include: Study Abroad experiences either short-term or semester long programs, Undergraduate research and service learning (EPICS), Internships and Co-ops, clubs and organizations, and the honors program.

Lyles School of Civil Engineering

Civil Engineering Major Change (CODO) Requirements

## Degree Requirements

# 130 Credits Required

## Departmental/Program Major Courses (65 credits)

## Civil Engineering Required Courses (35 credits)

*Grade of C- or better required for all CE courses in Major Requirement and should meet 2.0 GPA. (CE Core Course Policy)*

- CE 20300 - Principles And Practice Of Geomatics
- CE 21101 - Thermal And Energy Sciences
- CE 27000 - Introductory Structural Mechanics
- CE 29202 - Contemporary Issues In Civil Engineering (*satisfies General Education Elective*)
- CE 29700 - Basic Mechanics I (Statics) ♦
- CE 29800 - Basic Mechanics II Dynamics
- CE 33500 - Civil Engineering Materials

- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- CE 39800 - Introduction To Civil Engineering Systems Design
- CE 39201 - Technical Communication In Civil Engineering (*satisfies General Education Elective*)
- CE 49800 - Civil Engineering Design Project

## Technical Electives (30 credits)

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

*Note: Technical Elective Courses include CE 30000, 40000 and 50000 level courses that are not used to fulfill Major Course requirements.*

*(D- or better is required for Technical Electives)*

Click here for **Civil Engineering Supplemental Information** to learn more about Technical Elective requirements and approved courses.

## Other Departmental/Program Course Requirements (65-72 credits)

*Grade of C- or better is required*

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

**Note:** *CS 15900 or CHM 11600 is required to meet degree requirements, but not required to complete the First Year Engineering program.*

## Other Departmental/Program Course Requirements (21 credits)

- CM 16400 - Graphics For Civil Engineering And Construction ♦
- MA 26100 - Multivariate Calculus ♦
- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- PHYS 24100 - Electricity And Optics ♦
- STAT 51100 - Statistical Methods
- Basic Science Selective - Credit Hours: 3.00 (See Supplemental information for list of courses)

## General Education Requirement (15 credits)

- General Education Elective I - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education Elective III - Credit Hours: 3.00 (*Upper-level: 30000-level or above or from courses with a required pre-requisite in the same department*)
- General Education Elective IV - Credit Hours: 3.00 (*Upper-level: 30000-level or above or from courses with a required pre-requisite in the same department*)
- General Education Elective V - Credit Hours: 3.00 (any level)

### Note:

*At least 6 credits from Upper-level: 30000-level or above (or from courses with a required pre-requisite in the same department.)*

CE Students must complete a minimum of 18 credit hours of General Education Elective Courses. Three credit hours of General Education Electives is covered with the combination of 1 cr. from CE 29202 (2 cr.) + CE 39201 (2 cr.).

## Supplemental Lists

[Click here for Civil Engineering Supplemental Information](#)

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

## 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

## Grade Requirements

- *Grade of C- or better required for all CE courses in Major Requirement and should meet 2.0 GPA. (CE Core Course Policy)*



- *(D- or better is required for Technical Electives)*
- Other Departmental: *Grade of C- or better is required*
- Students must have a grade of C- or better in all courses except Technical Electives and General Education courses.

## GPA Requirements

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

## Pass/No Pass Policy

- All courses must be taken for a grade - Pass/No Pass is not allowed.

## Transfer Credit Policy

A maximum of 10 transfer credits of 300-level Civil Engineering required courses and technical electives can be used for the degree. Courses that are undistributed will need to be evaluated by the CE department for approval.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Civil Engineering Plan of Study

### Fall 2nd Year

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

18 Credits

### Spring 2nd Year

- MA 26500 - Linear Algebra
- CE 21101 - Thermal And Energy Sciences
- 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 33500 - Civil Engineering Materials
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- Technical Elective I - Credit Hours: 3.00
- General Education Elective II - Credit Hours: 3.00

17 Credits

### Spring 3rd Year

- STAT 51100 - Statistical Methods
- CE 39800 - Introduction To Civil Engineering Systems Design
- CE 39201 - Technical Communication In Civil Engineering
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- Technical Elective IV - Credit Hours: 3.00

17 Credits

### Fall 4th Year

- Basic Science Selective - 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
- General Education Elective IV - 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 V - Credit Hours: 3.00

## 12-15 Credits

## Combined Degree Information

### Combined BSCE and MSCE Program

A combined **BSCE + MSCE** program is available for outstanding Civil Engineering undergraduate students. This program can be completed in as little as five years (non-thesis and thesis option MSCE are possible) and result in receiving both the BSCE and MSCE degrees.

The BSCE + MSCE program is a mechanism for:

1. Providing a seamless transition from the BSCE to the MSCE program.
2. Stimulating interest in graduate study for advanced learning which would support more opportunities and faster advancement in professional and research/academic careers.
3. Allowing for special recognition of high levels of academic achievement.

The **BSCE + MSCE** program allows students to take up to 6 credits of graduate coursework (500 level) toward their BSCE professional elective requirement. These same 6 credits likewise count toward the MSCE degree. Additional graduate level courses taken in excess of the bachelor's requirement may also be eligible for transfer to a MSCE program for a total of 12 credits (6 dual counted; 6 excess).

Interested students typically apply as an "internal CE applicant" in the first half of their junior year with a cumulative undergraduate GPA of 3.3 or higher. If the internal application is accepted, the student would apply for combined program status to begin in the first semester of their senior year. A GPA of 3.3 must be maintained during combined program status. Grades of "B" or better must be earned for any course that would be dual counted.

Complete details of the combined **BSCE + MSCE** program can be found at <https://engineering.purdue.edu/CE/Academics/Graduate/Combined-BSCE-MSCE>.

Questions about this information should be directed to [cegrad@purdue.edu](mailto:cegrad@purdue.edu)

## 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Minor

### Architectural Engineering Minor

#### About the 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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Consultation with an advisor may result in an altered plan customized for an individual student.

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## Program Information

# Architectural Engineering Concentration in Civil Engineering

## About the Concentration

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 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design  
**Choose 2** - Credit Hours: 6.00
- CE 51300 - Lighting In Buildings
- CE 51401 - Building Controls
- CE 51501 - Building Energy Audits

## Civil Engineering General Education Courses

### General Education Courses

#### **Introductory Level Humanities (HUM) Courses**

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color Photography
- AD 12500 - Introduction To Interior Design
- AD 14600 - Design Drawing I
- AD 20000 - Beginning Painting

- AD 22000 - Computers In Art
- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- AD 22800 - Visual Communication Design Computing I
- 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 25100 - History Of Photography I
- AD 25500 - Art Appreciation
- AD 25600 - Presentation Techniques
- AD 26500 - Relief Printmaking
- AD 26600 - Silkscreen Printmaking
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture
- AD 28000 - Human Behavior And Designed Environment
- AMST 10100 - America And The World
- AMST 20100 - Interpreting America
- AMST 21000 - Sport In American Culture
- AMST 25000 - An Introduction To American Protest Movements: What Are They? What Can They Do? How Can We Make One?
- ARAB 10100 - Standard Arabic Level I
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASAM 24000 - Introduction To Asian American Studies
- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 28500 - Chinese Calligraphy
- CHNS 10100 - Chinese Level I
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics In Chinese Civilization And Culture
- CLCS 18100 - Classical World Civilizations
- CLCS 22000 - Topics In Classical Literature
- 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 23400 - Medical And Scientific Terminology From Greek And Latin Roots
- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23600 - Ancient World Onscreen
- 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
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 23700 - Our Common Bond: Languages And Cultures In A Global Context
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D
- CMPL 26700 - World Literature: From 1700 A D To The Present
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 23000 - Biomechanics Of Dance, Movement and Strength
- DANC 24500 - Practicum In Dance Performance And Production
- ENGL 20200 - Engaging English
- ENGL 20300 - Introduction To Research For Professional Writers
- ENGL 20400 - Special Topics In Writing
- ENGL 21500 - Inventing Languages
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 21800 - Figures Of Myth And Legends II: Heroes And Villains
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22700 - Elements Of Linguistics
- ENGL 22800 - Language And Social Identity
- ENGL 22900 - Creole Languages And Cultures
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- FR 10100 - French Level I
- FR 23000 - French Literature In Translation



- GER 10100 - German Level I
- GER 23000 - German Literature In Translation
- GREK 10100 - Ancient Greek Level I
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture
- 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 21100 - The Global Field: World Soccer And Global History
- HIST 22100 - History Behind The Headlines
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23005 - Hitler's Europe
- 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 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)
- IDIS 20100 - Introduction To Digital Humanities
- IDIS 29000 - Interdisciplinary Topics
- 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
- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 28000 - Introduction To Modern Japanese Civilization
- KOR 10100 - Korean Level I
- KOR 28000 - Special Topics In Korean Language
- LALS 25000 - Introduction To Latin American And Latino Studies
- LALS 26000 - U S Latino Culture
- LATN 10100 - Latin Level I
- 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 23100 - Fairytale, Folktale, Fable

- LC 23500 - East Asian Literature In Translation
- LC 23700 - Our Common Bond: Languages And Cultures In A Global Context
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages
- LC 26600 - World Literature: From The Beginnings to 1700 A D
- LC 26700 - World Literature: From 1700 A D To The Present
- LING 20100 - Introduction To Linguistics
- MARS 22000 - Introduction To Medieval And Renaissance Studies
- MUS 25000 - Music Appreciation
- MUS 29200 - Music, Media, And Technology
- 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 20700 - Ethics For Technology, Engineering, And Design
- PHIL 20800 - Ethics Of Data Science
- 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 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
- PTGS 10100 - Portuguese Level I
- PTGS 23500 - Luso-Brazilian Literature In Translation
- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20200 - Interpretation Of The Old Testament
- REL 20300 - Theology Of Paul
- REL 20400 - Introduction To Christian Theology
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- REL 25000 - A History Of The Christian Afterlife
- RUSS 10100 - Russian Level I
- RUSS 11100 - Conversation Supplement To Russian Level I
- RUSS 29800 - Special Topics In Russian
- SPAN 10100 - Spanish Level I
- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation
- THTR 13300 - Survey Of Acting
- THTR 16400 - Introduction To Theatre Organization And Management
- THTR 20100 - Theatre Appreciation

- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies
- **Introductory Level Social Sciences (BSS) Courses**
- AGECEC 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECEC 20400 - Introduction To Resource Economics And Environmental Policy
- AGECEC 21700 - Economics
- AGECEC 25000 - Economic Geography Of World Food And Resources
- AGECEC 29600 - Selected Topics In Agricultural Economics
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 21200 - Culture, Food And Health
- ANTH 21500 - Introduction To Forensic Anthropology
- ANTH 23000 - Gender Across Cultures
- ANTH 23500 - The Great Apes
- ANTH 25400 - Archaeological Hoaxes, Myths And Frauds
- ANTH 25600 - Archaeology Of Beer
- ANTH 28200 - Introduction To LGBTQ Studies
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- COM 10200 - Introduction To Communication Theory
- COM 20400 - Critical Perspectives On Communication
- 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 25200 - Writing For Mass Media
- COM 25300 - Introduction To Public Relations
- COM 25600 - Introduction To Advertising
- COM 25700 - Public Relations Techniques
- COM 26100 - Introduction To Digital Video Production
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 28000 - Diversity In Individual And Family Life
- 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 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy

- POL 22800 - Data Science And Public 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
- PSY 10000 - Introduction To The Science And Fields Of Psychology
- PSY 12000 - Elementary Psychology
- PSY 12300 - Beyond Mental Health: The Science Of Well-Being
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 21500 - Exploring Audiology And Hearing Science
- SLHS 22700 - Elements Of Linguistics
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 26700 - Religion In The Modern World
- SOC 27500 - Sociology Of Aging And The Life Course

**Combined Upper Level Gen Ed List (HUM & SS) Courses**

- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AAS 49100 - Special Topics In African American Studies
- AD 10600 - Design II
- AD 11400 - Drawing II
- AD 20500 - Design III
- AD 20600 - Studio In Visual Communication Design
- AD 21300 - Life Drawing I
- AD 21500 - Materials And Processes
- AD 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 26200 - Jewelry And Metalwork I
- AD 26700 - Digital Imaging
- AD 28500 - Interior Components And Materials
- AD 29000 - Special Topics In Art And Design
- AD 30000 - Life Drawing II
- AD 30400 - Video Art
- AD 30500 - Industrial Design I
- AD 30600 - Industrial Design II
- AD 30701 - History Of Contemporary Photography
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31500 - Design Methodology

- AD 31600 - Seminar On Ideas In Industrial Design I: Design And Society
- AD 31800 - Fundamentals Of Interactive Multimedia Design
- AD 31900 - Web Design For Visual Communication
- AD 32600 - Physical Computing
- AD 33000 - Interior Design III
- AD 33100 - Digital Video Production And Aesthetics
- AD 33200 - Visual Communication Design I
- AD 33300 - Photo Silk Screen
- AD 33400 - New Media Culture
- AD 33700 - Commercial And Professional Practice In Photography
- AD 33800 - Advanced Interior Design Communication
- AD 33900 - Women Artists In The 20th Century
- AD 34000 - Furniture Development
- AD 34200 - Ceramics II
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34700 - Lighting For Interior Environments
- AD 34800 - History Of Islamic Art
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36101 - The Constructed Image
- 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 - Alternative Photographic Processes
- AD 38200 - A Global History Of Modern Art
- 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 39600 - Art Museum Practices
- AD 39700 - Sustainability In The Built Environment
- AD 40000 - Advanced Painting
- AD 40400 - Moldmaking And/Or Wheel-Throwing Production Techniques In Ceramics
- AD 40500 - Industrial Design III
- AD 40600 - Industrial Design IV
- AD 41500 - Professional Techniques
- AD 41600 - Seminar On Ideas In Industrial Design II: Design And Creative Problem Solving Methods
- AD 41700 - Variable Topics In Electronic And Time-Based Art
- AD 42100 - Advanced Studies In Photography And Related Media I

- AD 43000 - Interior Design V
- AD 43100 - Visual Communication Design III
- AD 43200 - Visual Communication Design IV
- AD 43400 - Professional Practice For Visual Communication Designers
- AD 44000 - Interior Detailing And Construction
- AD 44200 - Ceramics III
- 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
- AGEC 22000 - Economics Of Agricultural Markets
- AGEC 30500 - Agricultural Prices
- 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 Industrial Selling
- AGEC 33300 - Food Distribution - A Retailing Perspective
- AGEC 34000 - International Economic Development
- AGEC 35200 - Quantitative Techniques For Firm Decision Making
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 41100 - Farm Management
- AGEC 42100 - Advanced Commodity Marketing
- 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 Industrial Sales And Marketing
- AGEC 45000 - International Agricultural Trade
- AGEC 45100 - Applied Econometrics
- AGEC 45500 - Agricultural Law
- AGEC 45600 - Federal Income Tax Law
- AMST 30100 - Perspectives On America
- AMST 31000 - Invention, Innovation, And Design
- AMST 32000 - Understanding The National Football League
- AMST 32500 - Sports, Technology, And Innovation
- AMST 33000 - American Car Culture
- ANTH 30600 - Quantitative Methods For Anthropological Research
- 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 32700 - Environment And Culture
- 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 35800 - African Cultures
- 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 38400 - Designing For People: Anthropological Approaches
- ANTH 38500 - Community Engagement In Anthropology
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ANTH 40400 - Comparative Social Organization
- ANTH 40500 - Ethnographic Methods
- 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
- ARAB 10200 - Standard Arabic Level II
- ARAB 11200 - Elementary Standard Arabic Conversation II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 21100 - Elementary Standard Arabic Conversation II
- ARAB 21200 - Elementary Standard Arabic Conversation IV
- ARAB 22400 - Arabic Level IV: Business Arabic
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ARAB 33400 - North African Literature And Culture
- ASAM 34000 - Contemporary Issues In Asian American Studies
- ASAM 34200 - Special Topics In Asian American Studies
- ASL 20200 - American Sign Language IV
- ASL 30100 - American Sign Language V
- ASL 30200 - American Sign Language Advanced-Level VI
- ASL 36100 - The Structure Of American Sign Language I: Phonology And Morphology
- ASL 36200 - The Structure Of American Sign Language II: Syntax, Semantics And Language Use
- ASL 36400 - Introduction To Structure Of American Sign Language
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- 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
- CHNS 49300 - Special Topics In Chinese Literature
- CLCS 33700 - The Ancient Epic
- CLCS 38000 - Alexander The Great And Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38400 - Ancient Western Medicine
- 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 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- CLCS 49900 - Special Topics In Classics
- COM 21000 - Addressing Public Issues
- COM 30300 - Intercultural Communication
- COM 30301 - Mentored Intercultural Communication Experience
- 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 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 33600 - Advertising Media Strategy
- COM 33701 - Producing Digital Advertising
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- COM 35300 - Problems In Public Relations
- COM 35600 - Problems In Advertising
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37500 - Conflict And Negotiation
- COM 37600 - Communication And Gender
- COM 37800 - Introduction To Health Communication
- 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 41900 - Judgment And Decision Making
- COM 42300 - Leadership, Communication And Organizations
- COM 42700 - Careers, Communication Issues And Strategies
- COM 43500 - Communication And Emerging Technologies
- COM 44400 - Introduction To Communication And Social Entrepreneurship
- COM 44700 - The Television Documentary
- COM 44900 - Media Management
- COM 45300 - Reporting Of Science News
- COM 45600 - Advertising Writing
- COM 46400 - American Political Communication
- COM 47800 - Health Communication Campaigns
- COM 49100 - Special Topics In Communication
- COM 49500 - Special Topics In Public Relations And Rhetorical Advocacy
- COM 49501 - Sports Media Relations
- COM 49502 - Travel Writing
- COM 49503 - Public Relations For Social Change
- COM 49505 - Sports Communication
- COM 49600 - Special Topics In Corporate Communication
- COM 49700 - Special Topics In Mass Communication
- DANC 30100 - Modern Dance Techniques III
- DANC 34500 - Choreography
- DANC 34600 - Intermediate Choreography
- DANC 36800 - Dance Sound Design
- DANC 49000 - Special Problems In Dance
- ECON 30100 - Managerial Economics
- ECON 31200 - Energy Economics: Competition, Regulatory, And Environmental Policy
- ECON 32200 - Economics Of Public Policy
- ECON 32500 - Economics Of Sports
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36000 - Econometrics
- ECON 36100 - Antitrust And Regulation
- ECON 36200 - Health Economics
- ECON 36500 - History Of Economic Thought
- ECON 36700 - Law And Economics
- ECON 37000 - International Trade
- ECON 37300 - Computational Economics
- ECON 37600 - Economics Of The European Union
- ECON 38000 - Money And Banking
- ECON 38500 - Labor Economics
- ECON 39000 - Junior Level Problems In Economics
- ECON 45100 - Game Theory
- ECON 45200 - Empirical Macroeconomics
- ECON 45500 - Historical Development Of Modern Economics
- ECON 45600 - Urban Economics

- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- ECON 49000 - Problems In Economics
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30100 - Ways Of Reading
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Digital Design And Production
- ENGL 31600 - Craft Of Fiction From A Writer's Perspective
- ENGL 31700 - Craft Of Poetry From a Writer's Perspective
- ENGL 32200 - Word, Image, Media
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 32900 - English Language III: Sound And Form
- ENGL 33100 - Medieval English Literature
- ENGL 33200 - Games And User Experience (UX)
- ENGL 34100 - Topics In Science, Literature, And Culture
- ENGL 34200 - Legal Fictions
- ENGL 34300 - Labor And Literature
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian 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 36700 - Mystery And Detective Fiction
- 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 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 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- 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 47000 - Advanced Topics In Rhetorical Studies
- FR 10200 - French Level II
- FR 10500 - Accelerated Basic French
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 20500 - Accelerated Intermediate French
- FR 21200 - Intermediate French Conversation
- FR 22400 - Professional 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 31200 - Advanced French Conversation
- FR 32400 - Professional 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 39600 - Special Topics In French Language Science
- FR 39900 - Special Study Abroad Credit In French
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 42400 - Professional French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FR 49100 - Special Topics In French
- GER 10200 - German Level II
- GER 10500 - Accelerated Basic German
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 20500 - Accelerated Intermediate German
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Science And Engineering
- 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 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 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 39900 - Special Study Abroad Credit In German
- GER 40100 - German Level VII
- GER 40200 - German Level VIII
- GER 42400 - Business German
- GER 48000 - German Civilization
- GER 49800 - Advanced Topics In German
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 34300 - Greek Oratory
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 35400 - Greek Comedy
- GREK 44600 - Greek Historians
- GREK 49000 - Directed Reading In Classical Greek
- HDFS 22500 - Human Development Across Cultures
- HDFS 26000 - Young Children With Exceptional Needs
- HDFS 30500 - Biosocial Foundations Of The Family
- HDFS 31000 - Guidance In Early Childhood
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 31300 - Adolescent Development
- HDFS 31400 - Atypical Child 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 34800 - Administration Of Social Service Not-For-Profit Organizations
- HDFS 39000 - Special Topics In HDFS
- HDFS 39800 - International Special Topics
- HDFS 41800 - Understanding Autism
- 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
- HEBR 38300 - Kabbalah And Jewish Mysticism: Secret Knowledge In Judaism
- HEBR 38500 - The Holocaust In Modern Hebrew Literature
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30105 - Big History: Time And Scale
- HIST 30200 - Historical Topics
- HIST 30305 - Food In Modern America

- HIST 30400 - America In The 1960s
- HIST 30505 - The United States In The World 1898-Present
- HIST 30605 - Technology And War In U.S. History
- HIST 30805 - History Of Life Sciences
- HIST 30905 - History Of Environmental Science
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877
- HIST 31205 - The Arab-Israeli Conflict
- HIST 31305 - Medical Devices And Innovation
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31505 - American Beauty
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31905 - Christianity In The Global Age
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32501 - Twentieth Century Europe Through Autobiography
- HIST 32900 - History Of Women In Modern Europe
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 33505 - Nationalism And Socialism In East Central Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33805 - History Of Human Rights
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34505 - Arabs in American Eyes
- HIST 34705 - History Of Religion In America
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 35305 - Sports In America
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35900 - Gender In East Asian History
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37005 - Queens And Empresses In Early Modern Europe
- 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 38105 - American Indians And Film
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History

- HIST 38400 - History Of Aviation
- HIST 38505 - Media, Politics And Popular Culture
- HIST 38605 - Land Of The Indians: Native Americans In Indiana
- HIST 38700 - History Of The Space Age
- HIST 39400 - Environmental History Of The United States
- HIST 39600 - African American History To 1877
- HIST 39800 - African American History Since 1877
- HIST 40000 - Great Books And The Search For Meaning
- HIST 40300 - Europe In The Reformation
- 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 41005 - History Of The American Presidency
- HIST 41300 - Modern European Imperialism: Repression And Resistance
- HIST 41505 - Gender And Politics In Early Modern Europe
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 43900 - Communist China
- HIST 44100 - Africa In The Twentieth Century
- HIST 45000 - The English Landscape: Integrating History, Horticulture & Landscape Architect
- 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 47005 - Women And Health In America
- HIST 47300 - History Of The South
- HIST 47600 - The Civil War In Myth And Memory
- HIST 47700 - Native American Women's History
- HIST 48005 - Madness And The Asylum In The United States
- HIST 48500 - Topics In American Political History
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49200 - Seminar In Historical Topics
- HIST 49400 - Science And Society In American Civilization
- IDIS 49000 - Directed Reading In Interdisciplinary Studies
- IDIS 49100 - Special Topics 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 21200 - Intermediate Italian Conversation
- 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 39900 - Special Study Abroad Credit It Italian
- ITAL 49300 - Advanced Topics In Italian Literature Or Cinema
- 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 36300 - Relationship Of Japanese Language And Society
- JPNS 39900 - Special Study Abroad Credit In Japanese
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48500 - Culinary Culture Of Japan
- JPNS 49000 - Special Topics In Japanese Language
- JWST 33000 - Introduction To Jewish Studies
- KOR 10200 - Korean Level II
- KOR 20100 - Korean Level III
- KOR 20200 - Korean Level IV
- KOR 30100 - Korean Level V
- KOR 38000 - Special Topics In Korean Culture
- KOR 48000 - Special Topics In Korean Studies
- LALS 30100 - Latin American Literary And Cultural Studies
- LALS 30300 - Latin American Languages And Linguistics
- LALS 34700 - Latin American Politics
- LALS 35500 - Political Economy Of Latin America
- LALS 40100 - Special Topics In Latin American/Latino Studies
- LALS 40200 - Directed Reading In Latin American/Latino Studies
- LATN 10200 - Latin Level II
- LATN 10500 - Accelerated Basic Latin
- 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
- LC 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 33800 - Language Through Films
- LC 36100 - Sound And Form In Language
- LC 36800 - Sociolinguistic Study Of African American English
- LC 37100 - Phonetics Of Foreign Languages
- LC 39900 - Special Study Abroad Credit In Foreign Languages
- LC 47500 - Theories Of Teaching World Languages
- LC 49000 - Special Topics In Foreign Languages And Literatures
- LC 49900 - Research In Foreign Languages
- LING 31100 - Fundamentals Of Phonology And Morphology
- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- LING 36800 - Sociolinguistic Study Of African American English
- LING 39800 - Special Topics In Linguistics I
- LING 49000 - Directed Reading In Linguistics
- LING 49800 - Special Topics In Linguistics II
- LING 49900 - Research In Linguistics
- MARS 42000 - Medieval And Renaissance Studies Seminar
- MUS 34100 - Music Composition I
- MUS 34200 - Music Composition II
- MUS 37500 - Selected Topics In 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
- MUS 49000 - Guided Reading In Music
- 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 31000 - Classical Chinese Philosophy
- PHIL 32200 - Philosophy Of Technology
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40300 - Moral Psychology And Climate Change
- 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 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 33500 - China And The Challenges Of Globalization
- 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 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 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43500 - International Law
- POL 43801 - International Human Rights
- POL 43900 - United States Foreign Policy Making
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- PSY 20000 - Introduction To Cognitive 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
- PSY 30500 - Understanding And Analyzing Psychological Data
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32400 - Introduction Cognitive Neuroscience
- PSY 32700 - Psychology Of Helping
- 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 35200 - Introduction To Neuropsychology
- PSY 35400 - Close Relationships
- PSY 36700 - Adult Development And Aging
- PSY 37600 - Attention And Cognitive Control
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 40100 - Language And The Brain
- PSY 40300 - Psycholinguistics
- PSY 41800 - Understanding Autism
- PSY 42100 - Alcohol Use And Disorders
- PSY 42200 - Genes and Behavior
- PSY 42600 - Language Development
- PSY 42800 - Drugs And Behavior
- PSY 43200 - Social Psychology In Film
- PSY 43400 - Neurobiology Of Disease
- PSY 43600 - Foods And Behavior
- PSY 43800 - Introduction To Clinical Psychology
- PSY 44300 - Aggression And Violence
- 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
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- PTGS 39800 - Topics In Portuguese
- PTGS 49800 - Advanced Topics In Portuguese
- PTGS 39900 - Special Study Abroad Credit In Portuguese
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics
- REL 45100 - Christology
- REL 45200 - Systematic Theology
- 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 38000 - Russian Culture And Civilization I
- RUSS 38100 - Russian Culture And Civilization II
- RUSS 39900 - Special Study Abroad Credit In Russian
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 42400 - Business Russian
- RUSS 49700 - Topics In Russian Literature
- RUSS 49800 - Topics In Russian Culture
- SLHS 30100 - Introduction To Cognitive Neuroscience
- SLHS 30200 - Hearing Science
- SLHS 30300 - Anatomy And Physiology Of The Speech Mechanism
- SLHS 30600 - Introduction To Phonetics
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 41800 - Understanding Autism
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SOC 31000 - Race And Ethnicity
- 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 33500 - Political Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Sociology Of Global Development
- SOC 34000 - General Social Psychology
- SOC 34400 - Environmental Sociology
- SOC 35000 - Sociology Of Family
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 36900 - Religion And Chinese Society
- SOC 37400 - Medical Sociology
- SOC 37700 - Sociology Of Mental Health
- 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 43200 - Work In Contemporary America
- SOC 45000 - Gender Roles In Modern Society
- SPAN 10200 - Spanish Level II
- SPAN 10500 - Accelerated Basic Spanish
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 20500 - Accelerated Intermediate Spanish
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 22400 - Spanish Level IV: Business Spanish
- 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 30801 - Advanced Spanish For Heritage Speakers
- SPAN 31200 - Advanced Spanish Conversation
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 32500 - Spanish For Engineering And Technology
- 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 39800 - Special Topics In Spanish
- SPAN 39900 - Special Study Abroad Credit In Spanish
- 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 48500 - Food And Culture In The Hispanic World
- SPAN 49800 - Advanced Topics In Spanish
- 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 36000 - Scenic Design
- THTR 36100 - Costume Design
- THTR 36200 - Light Design
- THTR 36300 - Sound 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 49000 - Special Topics In Theatre
- WGSS 38000 - Comparative Studies In Gender And Culture
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women, Work, And Labor
- WGSS 39000 - Variable Topics In Women's, Gender And Sexuality Studies
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality
- WGSS 48300 - Feminisms In Global Perspective
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies

## **Civil Engineering Supplemental Information**

### **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 23000 - Biology Of The Living Cell
- BTNY 28500 - Plants And Civilization
- EAPS 10000 - Planet Earth
- EAPS 10400 - Oceanography
- EAPS 10500 - The Planets
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 11200 - Earth Through Time
- EAPS 11600 - Earthquakes And Volcanoes
- EAPS 12000 - Introduction To Geography
- EAPS 12500 - Environmental Science And Conservation or
- FNR 12500 - Environmental Science And Conservation
- EAPS 22100 - Survey Of Atmospheric Science
- EAPS 12900 - Earth System Dynamics
- EAPS 13800 - Thunderstorms And Tornadoes
- ENTM 10500 - Insects: Friend And Foe
- ENTM 12800 - Investigating Forensic Science
- FNR 23000 - The World's Forests And Society

- FNR 24000 - Wildlife In America

## Civil Engineering Technical Electives (30 credits)

### 30 credits of Technical Electives required

- 21 credits must come from CE designated courses

- 9 credits 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.

**Breadth (B) Required Courses** - At least **four (4)** courses must be completed, guaranteeing sufficient breadth of study in at least four of the emphasis areas.

**Design Content (D) Required Courses** - At least **three (3)** courses must be completed guaranteeing sufficient design content.

\*Completing four courses from a single CE area of emphasis does not meet this requirement.

**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: (B)** At least four (4) courses must be completed, guaranteeing sufficient breadth of study in at least four of the emphasis areas.

**4.) Design content requirement: (D)** At least three (3) courses must be completed guaranteeing sufficient design content.

**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. (CEM 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.)

**6.) CE Variable title courses:** CE 49700 and CE 59700 variable title courses are generally allowed for CE technical electives but require approval from your advisor. Maximum of 6.0 credits of the following variable title courses: CE 49900 Independent research (maximum 3.0 credits), CE 49700 Independent study courses that require instructor permission (maximum 6.0 credits), CE 49700 Short term study abroad variable titled course (maximum 3.0 credits)

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

**Note:** 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 Technical Elective Policies for non-Civil Engineering Courses below.)

## Civil Engineering Technical Elective Courses by Area

### Architectural Engineering

- CE 31100 - Architectural Engineering (**B**)
- CE 41300 - Building Envelope Design And Thermal Loads (**D**)
- CE 41400 - Building Mechanical And Electrical System Design (**D**)
- CE 51300 - Lighting In Buildings
- CE 51401 - Building Controls
- CE 51501 - Building Energy Audits

### Construction Engineering

- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities (**B**) or
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities (**B**)
- CE 52000 - Construction Project Control Systems
- CE 52100 - Construction Business Management
- CE 52200 - Computer Applications In Construction (**D**)
- CE 52300 - Selection And Utilization Of Construction Equipment (**D**)
- CE 52400 - Legal Aspects In Engineering Practice
- CE 52700 - Analytical Methods For The Design Of Construction Operations Sem. 1 (**D**)
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities or
- CE 32201 - Project Control And Life Cycle Execution Of Constructed Facilities
- CE 52501 - Built Environment Modeling

### Geomatics Engineering

- CE 30300 - Engineering Surveying (**D**)
- CE 40800 - Geographic Information Systems In Engineering (**B**)
- CE 50101 - Map Projection And Geometric Geodesy
- CE 50301 - Digital Photogrammetric Systems
- CE 50401 - Laser Scanning
- CE 50601 - Adjustment Of Geospatial Observations
- CE 50701 - Geospatial Data Analytics
- CE 50801 - Geographic Information Systems

### Environmental Engineering

- CE 35000 - Introduction To Environmental And Ecological Engineering (**B**)
- CE 35500 - Engineering Environmental Sustainability
- CE 45600 - Wastewater Treatment Processes (**D**)
- CE 45700 - Air Pollution Control And Design (**D**)
- CE 55000 - Physico-Chemical Processes In Environmental Engineering I

- CE 55700 - Air Quality Management
- CE 55900 - Water Quality Modeling
- CE 59300 - Environmental Geotechnology

## Geotechnical Engineering

- CE 38300 - Geotechnical Engineering I (**B**)
- CE 48300 - Geotechnical Engineering II (**D**)
- CE 58000 - Advanced Geotechnical Engineering
- CE 58300 - Slopes And Retaining Structures (**D**)
- CE 58400 - Foundation Analysis And Design (**D**)
- CE 58700 - Soil Dynamics
- CE 59300 - Environmental Geotechnology

## Hydraulic & Hydrologic Engineering

- CE 44000 - Urban Hydraulics (**B and D**)
- CE 44200 - Introduction To Hydrology
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 54000 - Open Channel Hydraulics
- CE 54200 - Hydrology
- CE 54300 - Coastal Engineering (**D**)
- CE 54400 - Subsurface Hydrology
- CE 54500 - Sediment Transport Engineering
- CE 54700 - Transport Processes In Surface Waters
- CE 54900 - Computational Watershed Hydrology (**D**)

## Materials Engineering

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

## Structural Engineering

- CE 37100 - Structural Analysis I (**B**)
- CE 47000 - Structural Steel Design (**D**)
- CE 47300 - Reinforced Concrete Design (**D**)
- CE 47400 - Structural Analysis II
- CE 47900 - Design Of Building Components And Systems (**D**)
- CE 57000 - Advanced Structural Mechanics
- CE 57100 - Earthquake Engineering
- CE 57200 - Prestressed Concrete Design
- CE 57300 - Structural Dynamics
- CE 57500 - Experimental Methods In Structural Engineering
- CE 57600 - Advanced Reinforced Concrete Design
- CE 57900 - Structural Stability



- CE 59100 - Advanced Structural Steel Design
- CE 59500 - Finite Elements In Elasticity

## Transportation Engineering

- CE 36100 - Transportation Engineering (**B and D**)
- CE 46100 - Roadway And Pavement Design (**D**)
- CE 46300 - Highway Transportation Characteristics
- CE 51200 - Urban Planning And Analysis
- CE 56000 - Public Mass Transportation
- CE 56100 - Transportation Systems Evaluation
- CE 56200 - Geometric Design Of Highways (**D**)
- CE 56300 - Airport Design (**D**)
- CE 56500 - Traffic Engineering: Operations And Controls (**D**)
- CE 56600 - Transportation Planning
- CE 56700 - Highway Traffic And Safety Analysis (**D**)
- CE 56800 - Highway Infrastructure Management Systems
- CE 59400 - Transportation Systems Analysis

## 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.

### Pre-Approved Non-CE Technical Electives

*See exceptions to the approved courses in the No Count list below.*

#### Chemistry (CHM) & Physics (PHYS)

- CHM 25500 - Organic Chemistry For The Life Sciences I
- CHM 25600 - Organic Chemistry For The Life Sciences II
- CHM 25700 - Organic Chemistry
- CHM 26100 - Organic Chemistry I
- CHM 26200 - Organic Chemistry II
- CHM 26505 - Organic Chemistry I
- CHM 26605 - Organic Chemistry II
- PHYS 34200 - Modern Physics

#### EPICS (EPCS) Maximum of 3 credits

- EPCS 10100 - First Year Participation In EPICS
- EPCS 10200 - First Year Participation In EPICS
- 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

#### **Entrepreneurship (ENTR)**

- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- ENTR 31000 - Marketing And Management For New Ventures
- ENTR 31500 - Business Planning For Social Entrepreneurship
- ENTR 48000 - Entrepreneurial Leadership And Careers
- College of Engineering
- CEM 32400 - Human Resource Management In Construction
- CEM 45500 - Temporary Structures In Construction
- CEM 45600 - Design-Build Project Delivery Method For Engineers
- CEM 45700 - Inland Navigation Engineering
- CEM 48500 - Legal Aspects Of Construction Engineering
- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20100 - Linear Circuit Analysis I
- EEE 30000 - Environmental And Ecological Systems Modeling
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- EEE 38500 - Environmental Soil Chemistry
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- IE 34300 - Engineering Economics
- ME 41300 - Noise Control
- ME 43000 - Power Engineering
- **VIP (maximum of 3 credits)**
- VIP 27920 - Sophomore Participation In Vertically Integrated Projects (VIP)
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- **Polytechnic Institute (AFT/MSL/NS)** - Maximum of 6 credits (only for students who have completed four (4) semesters in Purdue ROTC
- AFT 35100 - Leading People And Effective Communication I
- AFT 35200 - Air Force ROTC Leadership Laboratory V
- AFT 36100 - Leading People And Effective Communication II
- AFT 36200 - Air Force ROTC Leadership Laboratory VI
- AFT 40220 - Air Force ROTC Leadership Laboratory
- AFT 47100 - National Security/Commissioning Preparation I
- AFT 47200 - Air Force ROTC Leadership Laboratory VII
- AFT 48100 - National Security/Commissioning Preparation II
- AFT 48200 - Air Force ROTC Leadership Laboratory VIII
- MSL 30100 - Training Management And The Warfighting Function
- MSL 30200 - Applied Leadership In Small Unit Operations
- MSL 35000 - American Military History And Leadership
- MSL 40100 - The Army Officer
- MSL 40200 - Company Grade Leadership
- MSL 49000 - Directed Studies In Military Science
- NS 31000 - Naval Navigation
- NS 31100 - Naval Operations And Seamanship
- NS 33000 - Evolution Of Warfare
- NS 35000 - Naval Ship Systems-Engineering
- NS 41300 - Naval Leadership And Ethics
- NS 44000 - Fundamentals Of Maneuver Warfare
- **School of Management**

- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 35000 - Intermediate Accounting I
- MGMT 37000 - Real Estate Fundamentals
- MGMT 37500 - Real Estate Law
- MGMT 44428 - Human Resources Management
- MGMT 45500 - Legal Background For Business I

**NOTE:** Generally these are approved as Technical Electives, however, if a course is **not on the above list** a student may send a written request to the CE Undergraduate Office to initiate the process to have a specific course from these prefixes and levels be considered for Technical Elective credit.

- College of Engineering 30000-59999 **See Purdue West Lafayette Approved Prefix list**
- College of Science 30000-59999 **See Purdue West Lafayette Approved Prefix list**
- ENTR 20000-59999
- MGMT 20000-59999

## Technical Elective No Count List

- 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.
- Courses not included in the approved courses list - 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.

## Not Approved - Not Substantially Equivalent

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.

- AAE 33300 - Fluid Mechanics
- AAE 33301 - Fluid Mechanics Laboratory
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- EEE 38000 - Environmental Chemodynamics
- IE 33000 - Probability And Statistics In Engineering II
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 35100 - Elementary Linear Algebra
- ME 30800 - Fluid Mechanics
- ME 30801 - Fluid Mechanics Laboratory
- ME 32300 - Mechanics Of Materials
- MGMT 30500 - Business Statistics
- NUCL 32000 - Introduction To Materials For Nuclear Applications
- PHYS 31000 - Intermediate Mechanics
- 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

## 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)

**Required Courses** - Credit Hours: 9.00

- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I  
**Choose 1** - Credit Hours: 3.00-4.00
- CE 47000 - Structural Steel Design
- CE 47300 - Reinforced Concrete Design
- CE 48300 - Geotechnical Engineering II  
**Choose 1** - Credit Hours: 3.00
- CE 32201 - Project Control And Life Cycle Execution Of Constructed Facilities
- CE 52100 - Construction Business Management
- CEM 48500 - Legal Aspects Of Construction Engineering  
**Choose 1** - Credit Hours: 3.00
- MGMT 20000 - Introductory Accounting
- MGMT 21200 - Business Accounting

## Environmental Engineering Concentration for Civil Engineering

### Required Courses (27 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 38300 - Geotechnical Engineering I
- CE 40800 - Geographic Information Systems In Engineering
- CE 44000 - Urban Hydraulics
- CE 45600 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 54300 - Coastal Engineering
- CE 59700 - Civil Engineering Projects - (*Title: Water Chemistry* - Credit Hours: 3.00)

## 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)

**Required Courses** - Credit Hours: 12.00

- CE 30300 - Engineering Surveying
- CE 36100 - Transportation Engineering
- CE 40800 - Geographic Information Systems In Engineering
- CE 49700 - Civil Engineering Projects - Title: Cadastral Surveying - Credit Hours: 3.00
- Choose 1 - Credit Hours: 3.00
- 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)

**Required Courses** - Credit Hours: 13.00

- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CE 47300 - Reinforced Concrete Design
- CE 48300 - Geotechnical Engineering II
- Choose 1 - Credit Hours: 3.00
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CE 44300 - Introductory Environmental Fluid Mechanics
- Choose 1 - Credit Hours: 3.00
- 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 (3.00 Credits)

## 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 in Civil Engineering (18 credits)

### Required Courses (15 credits)

- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 38300 - Geotechnical Engineering I
- CE 44000 - Urban Hydraulics
- CE 44200 - Introduction To Hydrology
- CE 54300 - Coastal Engineering

### Additional Course (3 credits)

- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 54000 - Open Channel Hydraulics
- CE 54400 - Subsurface Hydrology
- CE 54700 - Transport Processes In Surface Waters
- CE 54900 - Computational Watershed 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, 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 world is demanding innovative engineers who have skills to management people as well as the ability to design and manage projects.

The curriculum is designed with approximately 80% construction engineering and 20% management courses, and our classes are taught by industry experts who bring their own real-world experiences to the classroom. CEM offers opportunity to immediately put your skills to work in the real world. Our program is unique because it has:

- Small class sizes
- Innovative internships-3 paid 12-week experience
- 100% job placement
- Help solve complex infrastructure challenges

CEM degree propels our students into lucrative career paths as general contractors to business owners, consultants and project managers that work projects in aviation, oil and gas, healthcare, sustainable energy, bridges, skyscrapers, stadiums, etc. CEM offers students more than just an engineering degree. We are passionate about teaching, coaching and mentoring students so they excel academically and professionally to make a global impact.

Construction Engineering Management (<https://engineering.purdue.edu/CEM/academics>)



## Degree Requirements

# 126 Credits Required

## Construction Engineering Required Major Courses (66 credits)

All courses must be C- or better

- CE 20300 - Principles And Practice Of Geomatics
- CE 21101 - Thermal And Energy Sciences or
- ME 20000 - Thermodynamics I
- CE 27000 - Introductory Structural Mechanics
- CE 29700 - Basic Mechanics I (Statics)
- CE 29800 - Basic Mechanics II Dynamics
- CE 33500 - Civil Engineering Materials
- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CE 47300 - Reinforced Concrete Design
- CEM 18000 - Construction Engineering Pre-Professional Development (Must be taken in Spring Term during First-Year Engineering)
- CEM 19100 - Construction Internship I
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- CEM 28000 - Construction Engineering Professional Development I
- CEM 29100 - Construction Internship II
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- CEM 32400 - Human Resource Management In Construction
- CEM 38000 - Construction Engineering Professional Development II
- CEM 39100 - Construction Internship III
- CEM 42501 - Construction Engineering Capstone I
- CEM 42502 - Construction Engineering Capstone II
- CEM 45500 - Temporary Structures In Construction
- CEM 48500 - Legal Aspects Of Construction Engineering
- **Technical Electives - Credit Hours: 9.00**
- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

## Other Departmental/Program Course Requirements (60-73 credits)

## First-Year Engineering Requirements (29-39 credits)

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (22-25 credits)

- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- MGMT 20000 - Introductory Accounting ♦
- MGMT 30400 - Introduction To Financial Management ♦
- PHYS 24100 - Electricity And Optics ♦ or
- PHYS 27200 - Electric And Magnetic Interactions ♦
- STAT 35000 - Introduction To Statistics or
- STAT 51100 - Statistical Methods

## General Education Requirement (9 credits)

- General Education I (Human Cultures: Behavioral/Social Sciences) - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Science for core*)
- General Education II (Human Cultures: Humanities) - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education III (Science, Technology & Society) - Credit Hours: 3.00 (*satisfies Science, Technology, & Society for core*)

## Supplemental List

Construction Engineering Supplemental Information

## Supplemental List

Construction Engineering Supplemental Information

## Grade Requirements

- All courses taken except the 3 general education courses must be C- or better.

## GPA Requirements

- Students must have a graduation index of 2.0.

## Course Requirements and Notes

- CEM 18000 must be taken in Spring term during First-Year Engineering.
- Non-Introductory courses = 30000+ level course or one of the courses must be a pre-requisite for the other.
- One General Education Elective course must be a 30000+ level
- STS (Science, Tehcnology & Society) - Must take a 3 credit STS course to complete this requirement; 1 credit does not count.

## Non-course / Non-credit Requirements

Construction Engineering Internships are taken in the Summer term.

## Pass/No Pass Policy

- All required courses must be taken for a letter grade. Required courses are not permitted to be taken as pass/no pass.

## Transfer Credit Policy

*College, department, major transfer credit (including any/all undistributed credit, TR graded course, AP/IB credit, etc.) should be clearly stated. Can transfer credit be applied to the major? If yes, how and where?*

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or

- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Construction Engineering and Management Plan of Study

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

### Summer 1st Year

- CEM 19100 - Construction Internship I

0 Credit

### Fall 2nd Year

- CE 29700 - Basic Mechanics I (Statics)
- CE 20300 - Principles And Practice Of Geomatics
- CEM 28000 - Construction Engineering Professional Development I
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis
- MA 26100 - Multivariate Calculus

14 Credits

### Spring 2nd Year

- CE 27000 - Introductory Structural Mechanics
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- MGMT 20000 - Introductory Accounting
- General Education I (Human Cultures: Behavioral/Social Sciences) - Credit Hours: 3.00
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations

16-17 Credits

### Summer 2nd Year

- CEM 29100 - Construction Internship II
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

## 3-4 Credits

### Fall 3rd Year

- CE 29800 - Basic Mechanics II Dynamics
- CE 33500 - Civil Engineering Materials
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- CEM 32400 - Human Resource Management In Construction
- MGMT 30400 - Introduction To Financial Management

## 16 Credits

### Spring 3rd Year

- CE 34000 - Hydraulics
- CE 34300 - Elementary Hydraulics Laboratory
- CE 37100 - Structural Analysis I
- CE 38300 - Geotechnical Engineering I
- CEM 38000 - Construction Engineering Professional Development II
- Technical Elective I - Credit Hours: 3.00

## 14 Credits

### Summer 3rd Year

- CEM 39100 - Construction Internship III
- General Education II (Human Cultures: Humanities) - Credit Hours: 3.00

## 3 Credits

### Fall 4th Year

- CE 21101 - Thermal And Energy Sciences or
- ME 20000 - Thermodynamics I
- CE 47300 - Reinforced Concrete Design
- CEM 42501 - Construction Engineering Capstone I
- CEM 45500 - Temporary Structures In Construction
- Technical Elective II - Credit Hours: 3.00

## 15 Credits

### Spring 4th Year

- CEM 42502 - Construction Engineering Capstone II
- CEM 48500 - Legal Aspects Of Construction Engineering

- STAT 35000 - Introduction To Statistics or
- STAT 51100 - Statistical Methods
- General Education III (Science, Technology & Society) - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

14 Credits

## Pre-Requisite Information

For pre-requisite information, [click here](#).

## 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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 <sup>1</sup>
- CEM 30100 - Project Control And Life Cycle Execution Of Constructed Facilities
- CEM 29100 - Construction Internship II <sup>1,2</sup>

##### Elective Courses (9 credits)

- 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 above<sup>3</sup> - 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.
- <sup>1</sup> The internship shall be arranged by the student and approved by the Director of Internships for CEM.
- <sup>2</sup> An equivalent professional or research experience approved by the Chair of the Undergraduate Curriculum Committee for CEM.
- <sup>3</sup> Courses (or topics) that satisfy this requirement may have a prerequisite. The student should consult the academic advisor in advance.

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

### Construction Engineering Supplemental Information

#### Technical Electives (9 credits)

**Technical Electives - Credit Hours: 9.00**

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



- AAE 30000:59999
- ABE 30000:59999
- BME 30000:59999
- CE 30000:59999 (Except CE 39700, 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

## General Education Electives (9 credits)

- General Education I (Human Cultures: Behavioral/Social Sciences) - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II (Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III (Science, Technology & Society) - Credit Hours: 3.00 (satisfies Science, Technology, & Society for core)

### Note:

- 3 credit General Education Elective course must be a 30000+ level/Upper level
- Upper level = 30000+ level course or one of the courses must be a pre-requisite for the other.
- STS (Science, Tehcnology & Society) - Must take a 3 credit STS course to complete this requirement; 1 credit does not count.

# Elmore Family 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  
Elmore Family 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.

Electrical and Computer Engineering website

Electrical and Computer Engineering Major Change (CODO) Requirements

## Degree Requirements

# 125 Credits Required

## Computer Engineering Required Major Courses (53 credits)

*An overall 2.00 cumulative GPA or better for Required Major courses. (Some courses have minimum grade requirements for prerequisites.)*

## Required Core Courses (30 credits)

- ECE 20001 - Electrical Engineering Fundamentals I (minimum grade of C)
- ECE 20007 - Electrical Engineering Fundamentals I Lab

- ECE 20002 - Electrical Engineering Fundamentals II (minimum grade of C)
- ECE 26400 - Advanced C Programming (minimum grade of C)
- ECE 20875 - Python For Data Science
- ECE 27000 - Introduction To Digital System Design (minimum grade of C)
- 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:

- ECE 47700 - Digital Systems Senior Project

### Option 2:

- ECE 49022 - Electrical Engineering Senior Design Projects

### Option 3:

*Must be taken in each of 2 consecutive semesters.*

- EPCS 41200 - Senior Design Participation In EPICS

### Option 4:

*Must be taken in 2 consecutive semesters.*

- VIP 47921 - Senior Design Participation In Vertically Integrated Projects (VIP) I
- VIP 47922 - Senior Design Participation In Vertically Integrated Projects (VIP) II

## 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 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
- Computer Engineering "Special Content" courses - Maximum of 6 credits (See Computer Engineering "Special Content" Courses in Additional Requirements)

## Optional Concentrations

- Artificial Intelligence and Machine Learning Concentration for Computer Engineering
- Computer Systems Concentration in Computer Engineering
- Microelectronics and Semiconductor Concentration for Computer Engineering
- Software Engineering Concentration for Computer Engineering

## Other Department/Program Course Requirements (72 credits)

*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.*

## First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## 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 (minimum grade of C-)

## Engineering Breadth Selective - Choose One (3 credits)

- AAE 20300 - Aeromechanics I
- ABE 20100 - Thermodynamics In Biological Systems I
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- CE 29700 - Basic Mechanics I (Statics)
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CHE 20500 - Chemical Engineering Calculations
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- 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 (minimum grade of C-)
- MA 26600 - Ordinary Differential Equations
- MA 26500 - Linear Algebra
- ECE 36900 - Discrete Mathematics For Computer Engineering

### Option 2 (14 credits)

- MA 26100 - Multivariate Calculus (minimum grade of C-)
- MA 26200 - Linear Algebra And Differential Equations
- ECE 36900 - Discrete Mathematics For Computer Engineering
- Advanced Math Selective - Choose One (3 credits)
- 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 ♦  
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
- PHYS 31000 - Intermediate Mechanics
- PHYS 32200 - Intermediate Optics
- PHYS 34200 - Modern Physics
- PHYS 34400 - Introduction To Quantum Science

## ECE General Education Requirement (17-18 credits)

- General Education I (Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education II (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education III (satisfies Science, Technology & Society for core) - 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

*C- or better required in all General Education Requirement Courses*

- 6 of 24 credits must be Upper level courses (*Non-Introductory: At least 6 credits must be 30000-level or above (or from courses with a required pre-requisite in the same department.)*)
- 12 of 24 must be taken from 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.

### **24 credits total of General Education Courses Required**

*6-7 credits are taken in First-Year Engineering*

- General Education - FYE Requirement #8 (Written Communication) - Credit Hours: 3.00-4 credits (satisfies Written Communication for core)

- General Education - FYE Requirement #8 (Oral Communication) Credit Hours: 3.00 (satisfies Oral Communication for core)

## Electives (0-2 credits)

- Elective - Credit Hours: 0.00-2.00

- 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 identified on the Electrical and Computer Engineering No Count List.

## Supplemental Lists

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

## GPA Requirements

- An overall GPA of 2.0 or higher in the Required Major Courses is required.

## Pass/No Pass Policy

- The pass/no pass (P/NP) grade option, if available, may be used for courses taken to satisfy the ECE General Education and Complementary Elective Requirements. The P/NP grade option cannot be used for courses applied towards the Required Major Courses, General Engineering Requirement, Mathematics Requirement, and the Science Requirement (unless P/NP is the only allowed grade option for that course).

## Transfer Credit Policy

- All 30000-level and above courses applied towards the Required Major Courses must be completed at the Purdue West Lafayette campus.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement



The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement #7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or

- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Computer Engineering Plan of Study

Combined with two semesters for FYE above, the following is an example of a 4-year plan that satisfies the BSCMPE degree requirements.

### 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
- ECE 36900 - Discrete Mathematics For Computer Engineering
- MA 26100 - Multivariate Calculus  
**C Programming** (if not taken in FYE)
- CS 15900 - C Programming

16-19 Credits

### Spring 2nd Year

- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 20875 - Python For Data Science
- ECE 27000 - Introduction To Digital System Design  
**Mathematics Requirement**
- MA 26600 - Ordinary Differential Equations or
- MA 26200 - Linear Algebra And Differential Equations
- Foundational General Education I (Human Cultures: Humanities) - Credit Hours: 3.00

16-17 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
- ECE Science Selective - Credit Hours: 0.00-4.00
- Foundational General Education II (Human Cultures: Behavioral/Social Science) - Credit Hours: 3.00

14-18 Credits

## Spring 3rd Year

- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- PHYS 27200 - Electric And Magnetic Interactions
- Computer Engineering Selectives - Credit Hours: 7.00
- Foundational General Education III (Science, Technology, and Society) - Credit Hours: 3.00

16 Credits

## Fall 4th Year

### **Senior Design Requirement Option I**

- ECE 47700 - Digital Systems Senior Project
- MA 26500 - Linear Algebra or
- Advanced Math Selective - Credit Hours: 3.00
- Computer Engineering Selectives - Credit Hours: 3.00
- General Education IV - Credit Hours: 3.00
- Elective - Credit Hour: 0.00-3.00

13-16 Credits

## Spring 4th Year

- ECE 49401 - Professional Communication Capstone
- Computer Engineering Selectives - Credit Hours: 6.00
- Engineering Breadth Selective - Credit Hours: 3.00
- General Education V - Credit Hours: 3.00
- General Education VI - Credit Hours: 3.00
- Elective - Credit Hours: 0.00-2.00

16-18 Credits

## Pre-Requisite Information

For pre-requisite information, [click here](#).

## 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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.

Electrical and Computer Engineering Website

Electrical and Computer Engineering Major Change (CODO) Requirements

## Degree Requirements

# 124 Credits Required

### Required Major Courses (52 credits minimum)

An overall 2.00 cumulative GPA or better in the Required Major Courses Area is required. Some courses have minimum grade requirements for prerequisites.

### Electrical Engineering Core Requirements (27 credits)

- ECE 20001 - Electrical Engineering Fundamentals I ♦ (minimum grade of C)
- ECE 20002 - Electrical Engineering Fundamentals II ♦ (minimum grade of C)
- ECE 20007 - Electrical Engineering Fundamentals I Lab ♦
- 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 36200 - Microprocessor Systems And Interfacing
- ECE 38200 - Feedback System Analysis And Design
- ECE 44000 - Transmission Of Information
- ECE 30500 - Semiconductor Devices or
- ECE 50653 - Fundamentals Of Nanoelectronics
- ECE 43800 - Digital Signal Processing With Applications or
- ECE 53800 - Digital Signal Processing I
- ECE 32100 - Electromechanical Motion Devices or
- ECE 31032 - Power Systems Engineering or
- ECE 51012 - Electromechanics

### Electrical Engineering Electives (6-9 credits)

- Select from the list of **Electrical Engineering Electives** 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.

## Senior Design Requirement - Choose One Option (4 credits)

*All 20000-level courses and all but one 30000-level core course must be completed from above prior taking Senior Design (ECE 36200 prior to taking 47000). The remaining 30000-level core course must be taken with first semester of EPCS or VIP.*

### Option 1:

- ECE 49022 - Electrical Engineering Senior Design Projects

### Option 2:

- ECE 47700 - Digital Systems Senior Project

### Option 3:

Must be taken in each of 2 consecutive semesters.

- EPCS 41200 - Senior Design Participation In EPICS

### Option 4:

Must be taken in 2 consecutive semesters.

- VIP 47921 - Senior Design Participation In Vertically Integrated Projects (VIP) I
- VIP 47922 - Senior Design Participation In Vertically Integrated Projects (VIP) II

## Optional Concentrations:

- Automatic Control Concentration for Electrical Engineering
- Artificial Intelligence and Machine Learning Concentration for Electrical Engineering
- Electric Power and Energy Systems Concentration in Electrical Engineering
- Microelectronics and Semiconductors Concentration for Electrical Engineering
- Quantum Technology Concentration for Electrical Engineering
- Wireless & Optical Engineering Concentration for Electrical Engineering

## Other Department Requirements (72-78 credits)

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.)

## First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## General Engineering Requirement (3-6 credits)

### C Programming (0-3 credits)

Required only if CS 15900 was not taken as the First Year Engineering (FYE) Science Selective.

- CS 15900 - C Programming (minimum grade of C-)

### Engineering Breadth Selective - Choose One (3 credits)

- AAE 20300 - Aeromechanics I
- ABE 20100 - Thermodynamics In Biological Systems I
- BME 20100 - Biomolecules: Structure, Function, And Engineering Applications
- CE 29700 - Basic Mechanics I (Statics)
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CHE 20500 - Chemical Engineering Calculations
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- 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 ♦ (minimum grade of C-)
- MA 26600 - Ordinary Differential Equations
- MA 26500 - Linear Algebra

### Option 2 (11 credits)

#### **Math Required Courses** (8 credits)

- MA 26100 - Multivariate Calculus ♦ (minimum grade of C-)
- MA 26200 - Linear Algebra And Differential Equations
- **Advanced Math Selective** - Choose One (3 credits)
- 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.

#### **Science Required Course** (4 credits)

- PHYS 27200 - Electric And Magnetic Interactions
- **Science Selective** - Choose One (If an FYE Science Selective other than CS 15900 is selected, it will satisfy the ECE Science Selective)
- 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
- PHYS 31000 - Intermediate Mechanics
- PHYS 32200 - Intermediate Optics
- PHYS 34200 - Modern Physics
- PHYS 34400 - Introduction To Quantum Science

## ECE General Education Course Requirement (17-18 credits)

- General Education I (Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)



- General Education II (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education III (satisfies Science, Technology & Society for core) - 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

*C- or better required in all General Education Requirement Courses*

- 6 of 24 credits must be Upper level courses (*Non-Introductory or Upper-level Requirement: At least 6 credits must be 30000-level or above (or from courses with a required pre-requisite in the same department.)*)
- 12 of 24 must be taken from 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.

### **24 credits total of General Education Courses Required**

*6-7 credits are taken in First-Year Engineering*

- General Education - FYE Requirement #8 (Written Communication) - Credit Hours: 3.00-4 credits (satisfies Written Communication for core)

- General Education - FYE Requirement #8 (Oral Communication) Credit Hours: 3.00 (satisfies Oral Communication for core)

## **Electives (0-8 credits)**

*Electives/Complementary Electives are used 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.*

- Electives - Credit Hours: 0.00-8.00 (*All courses, except those on Electrical and Computer Engineering No Count list*)

## **Supplemental Lists**

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

## **GPA Requirements**

- 2.0 Graduation GPA required for Bachelor of Science degree.

## **Transfer Credit Policy**

College, department, major transfer credit (including any/all undistributed credit, TR graded course, AP/IB credit, etc.) should be clearly stated. Can transfer credit be applied to the major? If yes, how and where?

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

## 16 Credits

### Sample Electrical Engineering Plan of Study

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 I (Human Cultures: Humanities) - Credit Hours: 3.00

## 17 Credits

### Fall 3rd Year

- ECE 30100 - Signals And Systems
- ECE 39401 - Professional Communications And Diversity
- Foundational General Education II (Human Cultures: 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 III (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
- EE Elective - Credit Hours: 3.00
- General Education IV - Credit Hours: 3.00
- General Education V - Credit Hours: 3.00
- 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  
EE Elective with Adv Level Lab

- Engineering Breadth Selective - Credit Hours: 3.00
- General Education VI - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Minor

## Artificial Intelligence/Machine Learning Minor

### About the Minor

The Artificial Intelligence and Machine Learning minor gives students a grounding in the fundamental concepts underlying modern AI and Machine Learning approaches and systems. It covers both the mathematical background as well as programming, and allows students to branch out and draw on courses across the spectrum of AI and ML topics.

### Requirements for the Minor (15 credits)

#### Required Course (3 credits)

- ECE 20875 - Python For Data Science

#### Core Courses - Choose Two: (6 credits)

- ECE 26400 - Advanced C Programming
- ECE 30100 - Signals And Systems
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- ECE 36800 - Data Structures
- ECE 36900 - Discrete Mathematics For Computer Engineering

## Selective Courses - Choose Two: (6 credits)

- ECE 43800 - Digital Signal Processing With Applications
- ECE 47300 - Introduction To Artificial Intelligence
- ECE 49595 - Selected Topics In Electrical And Computer Engineering Titles: Data Mining Basic Concepts & Techniques; Cameras, Images, and Statistical Inverse Problems
- ECE 50024 - Machine Learning
- ECE 56900 - Introduction To Robotic Systems
- ECE 59500 - Selected Topics In Electrical Engineering Titles: Intro to Deep Learning; Deep Learning for Computer Vision; Natural Language Processing; Introduction to Data Mining

## Notes

- In addition to the course pre-requisites, the student's cumulative GPA must be a minimum of 3.0 at the time of application. A minimum ECE GPA of 3.0 is required to complete the minor.

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

## Electrical and Computer Engineering Minor

### Requirements for the Minor (18 credits)

There is an application process to be in this minor. Information is listed below.

### 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

## Selective Course - Choose One (3-4 credits)

- ECE 30100 - Signals And Systems
- ECE 30500 - Semiconductor Devices
- ECE 30411 - Electromagnetics I
- ECE 32100 - Electromechanical Motion Devices
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 36800 - Data Structures

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Microelectronics and Semiconductors Minor

The Microelectronics and Semiconductors minor provides transcriptable, specialized training to students interested in joining the microelectronics and advanced semiconductors workforce.

## Requirements for the Minor (18 credits)

### Required Courses - Choose One: (10 credits)

#### Option 1: Microelectronics Track (10 credits)

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 27000 - Introduction To Digital System Design
- ECE 33700 - ASIC Design Laboratory

#### Option 2: Semiconductors Track (10 credits)

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20002 - Electrical Engineering Fundamentals II

- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 30500 - Semiconductor Devices

## Electives (8 credits)

- ECE 20002 - Electrical Engineering Fundamentals II
  - ECE 27000 - Introduction To Digital System Design
  - ECE 30500 - Semiconductor Devices
  - ECE 33700 - ASIC Design Laboratory
  - ECE 36200 - Microprocessor Systems And Interfacing
  - ECE 43700 - Computer Design And Prototyping
  - ECE 45500 - Integrated Circuit Engineering
  - ECE 45600 - Digital Integrated Circuit Analysis And Design
  - ECE 55700 - Integrated Circuit Fabrication Laboratory
  - ECE 55900 - MOS VLSI Design
  - ECE 59500 - Selected Topics In Electrical Engineering
- Titles:**
- CMOS Analog IC Design - Credit Hours: 3.00
  - Digital Systems Design Automation - Credit Hours: 3.00
  - Embedded Systems - Credit Hours: 3.00
  - Microfabrication Fundamentals - Credit Hours: 1.00
  - Semiconductor Fundamentals - Credit Hours: 1.00
  - Semiconductor Manufacturing - Credit Hours: 1.00
  - Theory & Practice of Solar Cells: A Cell to System Perspective - Credit Hours: 1.00
  - MEMS-I: Microfabrication and Materials for MEMS - Credit Hours: 1.00
  - Fundamentals of Current Flow - Credit Hours: 1.00
  - Introduction to Quantum Transport - Credit Hours: 1.00
  - Boltzmann Law: Physics to Computing - Credit Hours: 1.00
  - Primer on Semiconductors - Credit Hours: 1.00
  - Essentials of Transistors - Credit Hours: 1.00
  - Advanced Lithography - Credit Hours: 1.00

## Disclaimer

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

## Program Information

# Artificial Intelligence and Machine Learning Concentration for Computer Engineering

## About the Concentration



The Artificial Intelligence and Machine Learning Concentration for BSCmpE students provides a grounding in the fundamental concepts underlying modern AI and Machine Learning approaches and systems. It covers both the mathematical background as well as programming, and allows students to branch out and draw on courses across the spectrum of AI and ML topics.

## Concentration Requirements - Choose 9 credits:

- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 47300 - Introduction To Artificial Intelligence or
- ECE 57000 - Artificial Intelligence
- ECE 49595 - Selected Topics In Electrical And Computer Engineering (Title: Cameras, Imaging and Statistical Inverse Problems)
- ECE 49500 - Selected Topics In Electrical And Computer Engineering (Title: Data Mining Basic Concepts and Techniques) or ECE 59500 - Selected Topics In Electrical Engineering (Title: Introduction to Data Mining)
- ECE 50024 - Machine Learning
- ECE 56900 - Introduction To Robotic Systems
- ECE 59500 - Selected Topics In Electrical Engineering (Titles: Deep Learning for Computer Vision; Introduction to Deep Learning; Natural Language Processing)  
**Can include up to 3 hours of:** *(Must have approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning)*
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- ECE 49600 - Electrical And Computer Engineering Projects

## Artificial Intelligence and Machine Learning Concentration for Electrical Engineering

### About the Concentration

The Artificial Intelligence and Machine Learning Concentration for BSEE students provides a grounding in the fundamental concepts underlying modern AI and Machine Learning approaches and systems. It covers both the mathematical background as well as programming, and allows students to branch out and draw on courses across the spectrum of AI and ML topics.

## Concentration Requirements - Choose 9 credits:

- ECE 43800 - Digital Signal Processing With Applications
- ECE 47300 - Introduction To Artificial Intelligence or
- ECE 57000 - Artificial Intelligence
- ECE 49595 - Selected Topics In Electrical And Computer Engineering (Title: Cameras, Imaging and Statistical Inverse Problems)
- ECE 49500 - Selected Topics In Electrical And Computer Engineering (Title: Data Mining Basic Concepts and Techniques) or
- ECE 59500 - Selected Topics In Electrical Engineering (Title: Introduction to Data Mining)
- ECE 50024 - Machine Learning
- ECE 56900 - Introduction To Robotic Systems

- ECE 59500 - Selected Topics in Electrical Engineering (Titles: Deep Learning for Computer Vision; Introduction to Deep Learning; Natural Language Processing)

**Can include up to 3 hours of:** *(Must have approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning)*

- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- ECE 49600 - Electrical And Computer Engineering Projects

## **Automatic Control Concentration**

The concentration in Automatic Controls focuses on the area of control of dynamical systems, spanning a variety of application domains. The courses in this concentration will establish the fundamental theory and tools for modeling, analyzing, and designing controllers, including stability, performance, and robustness. It spans core topics such as frequency domain design, state-space control, digital control, robotics, optimization for control, as well as advanced courses in emerging topics.

### **Requirements for the Concentration (10 credits)**

#### **Required Courses (4 credits)**

- ECE 30800 - Systems Simulation And Control Laboratory
- ECE 38200 - Feedback System Analysis And Design

#### **Selectives (6 credits)**

VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 48300 - Digital Control Systems Analysis And Design
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 56900 - Introduction To Robotic Systems
- ECE 58000 - Optimization Methods For Systems And Control
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **Automatic Control Concentration for Electrical Engineering**

### **About the Concentration**

The concentration in Automatic Controls focuses on the area of control of dynamical systems, spanning a variety of application domains. The courses in this concentration will establish the fundamental theory and tools for modeling, analyzing, and designing controllers, including stability, performance, and robustness. It spans core topics such as frequency domain design, state-space control, digital control, robotics, optimization for control, as well as advanced courses in emerging topics.

## Requirements for the Concentration (10 credits)

### Required Courses (4 credits)

- ECE 30800 - Systems Simulation And Control Laboratory
- ECE 38200 - Feedback System Analysis And Design

### Selectives (6 credits)

VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 48300 - Digital Control Systems Analysis And Design
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 56900 - Introduction To Robotic Systems
- ECE 58000 - Optimization Methods For Systems And Control
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **Automatic Control Concentration for Electrical Engineering**

### Automatic Control Concentration for Electrical Engineering

The Artificial Intelligence and Machine Learning Concentration for BSEE students provides a grounding in the fundamental concepts underlying modern AI and Machine Learning approaches and systems. It covers both the mathematical background as well as programming and allows students to branch out and draw on courses across the spectrum of AI and ML topics.

## Requirements for the Concentration (10 credits)

### Required Courses (4 credits)

- ECE 30800 - Systems Simulation And Control Laboratory
- ECE 38200 - Feedback System Analysis And Design

### Selectives (6 credits)

VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 48300 - Digital Control Systems Analysis And Design
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 56900 - Introduction To Robotic Systems
- ECE 58000 - Optimization Methods For Systems And Control

- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **Computer Engineering "Special Content" Courses**

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

- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ECE 29600 - Electrical And Computer Engineering Projects
- ECE 39600 - Industrial Practice Seminar I
- ECE 43800 - Digital Signal Processing With Applications
- ECE 44000 - Transmission Of Information
- ECE 44100 - Distributed Parameter Systems
- 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 49600 - Electrical And Computer Engineering Projects
- 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 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
- 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
- VIP 27920 - Sophomore Participation In Vertically Integrated Projects (VIP)
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)

- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **Computer Systems Concentration in Computer Engineering**

The Computer Systems Concentration gives students an opportunity to specialize in classes that cover the foundations of computer systems: how do the hardware and software systems that applications run on work. These courses cover topics such as networking, computer hardware, compilers, and operating systems.

### **Electives (9 credits)**

Complete a minimum of 9 credits from the following courses.

VIP (Vertical Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 33700 - ASIC Design Laboratory and
- ECE 43700 - Computer Design And Prototyping
- ECE 40862 - Software For Embedded Systems or
- ECE 56800 - Embedded Systems
- 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 40400 - Introduction To Computer Security
- ECE 46900 - Operating Systems Engineering
- ECE 49600 - Electrical And Computer Engineering Projects
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **Computer Systems Concentration in Computer Engineering**

### **Computer Systems Concentration in Computer Engineering**

The Computer Systems Concentration gives students an opportunity to specialize in classes that cover the foundations of computer systems: how do the hardware and software systems that applications run on work. These courses cover topics such as networking, computer hardware, compilers, and operating systems.

### **Selectives (9 credits)**

- ECE 33700 - ASIC Design Laboratory and
- ECE 43700 - Computer Design And Prototyping
- ECE 40862 - Software For Embedded Systems or
- ECE 56800 - Embedded Systems
- 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 40400 - Introduction To Computer Security
- ECE 46900 - Operating Systems Engineering
- ECE 49600 - Electrical And Computer Engineering Projects
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## Notes:

VIP (Vertical Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

## ECE General Education Electives

### ECE General Education Requirement Information

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

## General Educational Courses

### Introductory Level Courses

(10000- and 20000-level courses without a prerequisite in the same department)

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- 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 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
- AGECE 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
- AGECE 21700 - Economics
- AGECE 22000 - Economics Of Agricultural Markets
- AGECE 25000 - Economic Geography Of World Food And Resources
- AGECE 29600 - Selected Topics In Agricultural Economics
- AMST 20100 - Interpreting America

- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 23000 - Gender Across Cultures
- ARAB 10100 - Standard Arabic Level I
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 23000 - Arabic Literature In Translation
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- 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
- CLCS 18100 - Classical World Civilizations
- CLCS 22000 - Topics In Classical Literature
- 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 23400 - Medical And Scientific Terminology From Greek And Latin Roots
- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23600 - Ancient World Onscreen
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CLCS 23800 - The Tragic Vision
- CLCS 23900 - The Comic Vision
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 23700 - Our Common Bond: Languages And Cultures In A Global Context
- 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 21000 - Addressing Public Issues
- 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
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I



- DANC 10300 - Jazz Dance I
- DANC 24000 - Dance Composition
- DANC 24500 - Practicum In Dance Performance And Production
- ECON 21000 - Principles Of Economics
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 20500 - Introduction To Creative Writing
- ENGL 21500 - Inventing Languages
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 21800 - Figures Of Myth And Legends II: Heroes And Villains
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22700 - Elements Of Linguistics
- ENGL 22800 - Language And Social Identity
- ENGL 22900 - Creole Languages And Cultures
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- FR 10100 - French Level I
- FR 10500 - Accelerated Basic French
- FR 11200 - Elementary French Conversation
- FR 20500 - Accelerated Intermediate French
- FR 21200 - Intermediate French Conversation
- FR 22400 - Professional French I
- FR 23000 - French Literature In Translation

- FR 24100 - Introduction To The Study Of French Literature
- FR 28000 - Second-Year French: Special Topics
- FVS 26100 - Foundations Of Cinema Production
- GER 10100 - German Level I
- GER 10500 - Accelerated Basic German
- GER 11200 - Elementary German Conversation
- GER 20500 - Accelerated Intermediate German
- GER 21200 - Intermediate German Conversation
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics
- GREK 10100 - Ancient Greek Level I
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 22500 - Human Development Across Cultures
- HDFS 28000 - Diversity In Individual And Family Life
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture
- 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 22100 - History Behind The Headlines
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23005 - Hitler's Europe
- 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 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 27800 - Money, Trade, And Power: The History Of Capitalism
- IDIS 20100 - Introduction To Digital Humanities
- ITAL 10100 - Italian Level I
- ITAL 10500 - Accelerated Basic Italian
- ITAL 11200 - Elementary Italian Conversation
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- 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

- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization
- LATN 10100 - Latin Level I
- LATN 10500 - Accelerated Basic Latin
- LC 10100 - Special Topics In Foreign Languages I
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 23100 - Fairytale, Folktale, Fable
- LC 23500 - East Asian Literature In Translation
- LC 23700 - Our Common Bond: Languages And Cultures In A Global Context
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages
- LC 26600 - World Literature: From The Beginnings to 1700 A D
- LC 26700 - World Literature: From 1700 A D To The Present
- LC 33300 - The Middle Ages On Film
- LING 20100 - Introduction To Linguistics
- MARS 22000 - Introduction To Medieval And Renaissance Studies
- MGMT 17500 - Information Strategies For Management
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 21200 - Business Accounting
- MGMT 22000 - Making The Business Case
- MGMT 24200 - Contemporary Problems In Personal Finance For Minorities
- MGMT 24300 - Contemporary Thought Of Minorities In Management
- MGMT 25400 - Legal Foundations Of Business I
- MGMT 26100 - Introduction To Supply Chain Management
- MGMT 28500 - Knowledge Management
- MGMT 29400 - Navigating Gender In The Workplace
- MGMT 29450 - Leadership Development To Bridge Gender Divide
- MUS 25000 - Music Appreciation
- 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 20800 - Ethics Of Data Science
- 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
- 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 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy
- POL 22800 - Data Science And Public 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
- PSY 10000 - Introduction To The Science And Fields Of Psychology
- PSY 12000 - Elementary Psychology
- PSY 20000 - Introduction To Cognitive 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
- PTGS 10100 - Portuguese Level I
- PTGS 10500 - Accelerated Portuguese
- PTGS 23500 - Luso-Brazilian Literature In Translation
- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20200 - Interpretation Of The Old Testament
- REL 20300 - Theology Of Paul
- REL 20400 - Introduction To Christian Theology
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- REL 25000 - A History Of The Christian Afterlife
- RUSS 10100 - Russian Level I
- RUSS 11100 - Conversation Supplement To Russian Level I
- RUSS 29800 - Special Topics In Russian
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 22700 - Elements Of Linguistics
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 26700 - Religion In The Modern World

- SOC 27500 - Sociology Of Aging And The Life Course
- SPAN 10100 - Spanish Level I
- SPAN 10500 - Accelerated Basic Spanish
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20500 - Accelerated Intermediate Spanish
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 22400 - Spanish Level IV: Business Spanish
- 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
- THTR 13300 - Survey Of Acting
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 16400 - Introduction To Theatre Organization And Management
- THTR 20100 - Theatre Appreciation
- THTR 21300 - Voice For The Actor
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies

## Non-Introductory Level Courses

(Courses at the 30000-level or above, or courses with a required prerequisite in the same department)

- 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 25600 - Presentation Techniques
- AD 30000 - Life Drawing II
- 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 35000 - Interior Design IV
- AD 36101 - The Constructed Image
- AD 36200 - Jewelry And Metalwork
- AD 36600 - Visual Communication Design II
- AD 38500 - History Of Interior Design
- AD 40000 - Advanced Painting

- AD 40500 - Industrial Design III
- AD 40600 - Industrial Design IV
- AD 44200 - Ceramics III
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 47000 - Advanced Studies In Textiles
- AGECE 22000 - Economics Of Agricultural Markets
- AGECE 34000 - International Economic Development
- AGECE 35200 - Quantitative Techniques For Firm Decision Making
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 41000 - Agricultural Policy
- AGECE 45000 - International Agricultural Trade
- ANTH 32000 - Ancient States And Empires
- AGECE 33300 - Food Distribution - A Retailing Perspective
- ANTH 40400 - Comparative Social Organization
- ANTH 40500 - Ethnographic Methods
- ANTH 41800 - Field Methods In Cultural Anthropology
- ANTH 42500 - Archaeological Method And Theory
- ANTH 43600 - Human Evolution
- ANTH 48200 - Sexual Diversity In Global Perspectives
- 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 21100 - Elementary Standard Arabic Conversation II
- ARAB 21200 - Elementary Standard Arabic Conversation IV
- ARAB 22400 - Arabic Level IV: Business Arabic
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- ASL 30100 - American Sign Language V
- ASL 30200 - American Sign Language Advanced-Level VI
- ASL 36100 - The Structure Of American Sign Language I: Phonology And Morphology
- ASL 36200 - The Structure Of American Sign Language II: Syntax, Semantics And Language Use
- ASL 36400 - Introduction To Structure Of American Sign Language
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- 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 40100 - Chinese Level VII
- CHNS 40200 - Chinese Level VIII

- CLCS 23200 - Classical Roots Of English Words
- CLCS 48000 - Potters And Society In Antiquity
- CLCS 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- COM 21000 - Addressing Public Issues
- COM 31200 - Rhetoric In The Western World
- COM 31400 - Advanced Presentational Speaking
- COM 31500 - Speech Communication Of Technical Information
- COM 37200 - Communication In Relationships
- COM 41200 - Theories Of Human Interaction
- DANC 34600 - Intermediate Choreography
- ECON 30100 - Managerial Economics
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36100 - Antitrust And Regulation
- ECON 36200 - Health Economics
- ECON 36500 - History Of Economic Thought
- ECON 36700 - Law And Economics
- ECON 37000 - International Trade
- 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 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- ECON 51200 - Intermediate Economics II
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Digital Design And Production
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 32900 - English Language III: Sound And Form
- ENGL 40700 - Intermediate Poetry Writing
- ENGL 40900 - Intermediate Fiction Writing
- ENGL 41900 - Multimedia Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- FR 10200 - French Level II
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 20500 - Accelerated Intermediate French
- FR 21200 - Intermediate French Conversation
- FR 22400 - Professional 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 31200 - Advanced French Conversation
- 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 42400 - Professional French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FVS 33600 - Screenwriting
- GER 10200 - German Level II
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 20500 - Accelerated Intermediate German
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Science And Engineering
- 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 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
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 34300 - Greek Oratory
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 35400 - Greek Comedy
- GREK 44600 - Greek Historians
- HDFS 22500 - Human Development Across Cultures
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 31300 - Adolescent Development
- HDFS 31400 - Atypical Child Development
- HDFS 32500 - Health And Health Care For Children And Families



- HDFS 33000 - Sexuality And Family Life
- HDFS 33200 - Stress And Coping In Contemporary Families
- HDFS 34800 - Administration Of Social Service Not-For-Profit Organizations
- 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
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 30100 - Italian Level V
- ITAL 30200 - Italian Level VI
- ITAL 31200 - Advanced Italian Conversation
- 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 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 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 36100 - Elementary Survey Of Japanese Linguistics
- JPNS 36300 - Relationship Of Japanese Language And Society
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48500 - Culinary Culture Of Japan
- 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
- LC 36100 - Sound And Form In Language

- LC 37100 - Phonetics Of Foreign Languages
- LING 31100 - Fundamentals Of Phonology And Morphology
- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- MGMT 20100 - Management Accounting I
- MGMT 31000 - Financial Management
- MGMT 42810 - Pricing Strategy And Analysis
- MGMT 44433 - Leading And Working In Teams
- MUS 34200 - Music Composition II
- MUS 37500 - Selected Topics In Music
- MUS 38100 - Music History I: Antiquity To Mozart
- MUS 38200 - Music History II: Beethoven To The Present
- PHIL 42500 - Metaphysics
- POL 31400 - The President And Policy Process
- POL 41000 - Political Parties And Politics
- POL 41100 - Congress: Structure And Functioning
- POL 43200 - Selected Problems In World Order
- POL 43500 - International Law
- POL 46000 - Judicial Politics
- PSY 20000 - Introduction To Cognitive 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 30500 - Understanding And Analyzing Psychological Data
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32700 - Psychology Of Helping
- 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 35400 - Close Relationships
- PSY 36700 - Adult Development And Aging
- PSY 38000 - Behavior Change Methods
- PSY 39200 - Special Topics In Psychology
- PSY 42600 - Language Development
- PSY 42800 - Drugs And Behavior
- PSY 43200 - Social Psychology In Film
- PSY 44300 - Aggression And Violence
- 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 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- REL 45000 - Christian Ethics
- REL 45100 - Christology
- REL 45200 - Systematic Theology
- 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 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 42400 - Business Russian
- SLHS 40100 - Language And The Brain
- SOC 33400 - Urban Sociology
- SOC 37400 - Medical Sociology
- SOC 39100 - Selected Topics In Sociology
- SOC 40200 - Sociological Theory
- SOC 42100 - Juvenile Delinquency
- SOC 42300 - Field Practicum In Sociology And Law And Society
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 43200 - Work In Contemporary America
- SOC 45000 - Gender Roles In Modern Society
- SPAN 10200 - Spanish Level II
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 20500 - Accelerated Intermediate Spanish
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 22400 - Spanish Level IV: Business Spanish
- 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 30801 - Advanced Spanish For Heritage Speakers
- SPAN 31200 - Advanced Spanish Conversation
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 32500 - Spanish For Engineering And Technology
- 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 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 48500 - Food And Culture In The Hispanic World
- 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 36200 - Light Design
- THTR 38000 - History Of Theatre I
- THTR 38100 - History Of Theatre II
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality
- WGSS 48300 - Feminisms In Global Perspective

## **Electric Power and Energy Systems Concentration in Electrical Engineering**

The EPES Concentration is for BSEE students who plan to pursue careers in the power industry (e.g., electric utilities, smart grid software/hardware industry, grid operators, power equipment vendors, automotive, heavy equipment, aircraft, and marine industries). It focuses on areas of electric power and energy systems, and in particular elements of power engineering, power electronics and drives, and electric machinery.

### **Concentration Requirements - Choose Three (9 credits)**

- ECE 31032 - Power Systems Engineering
- ECE 51018 - Hybrid Electric Vehicles
- ECE 32100 - Electromechanical Motion Devices or
- ECE 51012 - Electromechanics

## **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)
- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AD 10500 - Design I
- AD 10600 - Design II
- AD 11300 - Basic Drawing
- AD 11400 - Drawing II
- AD 11700 - Black And White Photography
- AD 12500 - Introduction To Interior Design
- 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 23500 - Materials And Processes II
- 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 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture
- AD 30000 - Life Drawing II
- AD 30400 - Video Art
- 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 33900 - Women Artists In The 20th Century
- AD 34200 - Ceramics II
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34800 - History Of Islamic Art
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36101 - The Constructed Image
- 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 - Alternative Photographic Processes
- AD 38200 - A Global History Of Modern Art
- 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 39600 - Art Museum Practices
- 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
- AGECEC 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECEC 20400 - Introduction To Resource Economics And Environmental Policy
- AGECEC 21700 - Economics
- AGECEC 22000 - Economics Of Agricultural Markets
- AGECEC 25000 - Economic Geography Of World Food And Resources
- AGECEC 29600 - Selected Topics In Agricultural Economics
- AGECEC 33100 - Principles Of Industrial Selling
- AGECEC 33300 - Food Distribution - A Retailing Perspective
- AGECEC 34000 - International Economic Development
- AGECEC 35200 - Quantitative Techniques For Firm Decision Making
- AGECEC 40600 - Natural Resource And Environmental Economics
- AGECEC 41000 - Agricultural Policy

- AGEC 45000 - International Agricultural Trade
- AMST 20100 - Interpreting America
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 23000 - Gender Across Cultures
- 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 38500 - Community Engagement In Anthropology
- ANTH 39000 - Individual Research In Anthropology
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ANTH 40400 - Comparative Social Organization
- ANTH 40500 - Ethnographic Methods
- ANTH 41400 - Introduction To Language And Culture
- ANTH 41800 - Field Methods In Cultural Anthropology
- ANTH 42500 - Archaeological Method And Theory
- ANTH 42800 - Field Methods In Archaeology
- ANTH 43600 - Human Evolution
- ANTH 46000 - Contemporary Issues In Agriculture
- ANTH 48200 - Sexual Diversity In Global Perspectives
- 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 21100 - Elementary Standard Arabic Conversation II
- ARAB 21200 - Elementary Standard Arabic Conversation IV
- ARAB 22400 - Arabic Level IV: Business Arabic
- 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
- ASL 30100 - American Sign Language V
- ASL 30200 - American Sign Language Advanced-Level VI
- ASL 36100 - The Structure Of American Sign Language I: Phonology And Morphology
- ASL 36200 - The Structure Of American Sign Language II: Syntax, Semantics And Language Use
- ASL 36400 - Introduction To Structure Of American Sign Language
- 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
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- 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
- CHNS 49300 - Special Topics In Chinese Literature
- CLCS 18100 - Classical World Civilizations
- CLCS 22000 - Topics In Classical Literature
- 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 23400 - Medical And Scientific Terminology From Greek And Latin Roots
- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23600 - Ancient World Onscreen
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CLCS 23800 - The Tragic Vision
- CLCS 23900 - The Comic Vision
- CLCS 33700 - The Ancient Epic
- CLCS 38000 - Alexander The Great And Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38400 - Ancient Western Medicine
- 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 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 23700 - Our Common Bond: Languages And Cultures In A Global Context
- 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 21000 - Addressing Public Issues
- 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
- COM 30300 - Intercultural Communication
- 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 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- 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 41500 - Discussion Of Technical Problems
- COM 41600 - United States Politics And The Media
- COM 42300 - Leadership, Communication And Organizations
- COM 43500 - Communication And Emerging Technologies
- COM 49100 - Special Topics In Communication
- CSR 20900 - Introduction To Retail Management
- CSR 34200 - Personal Finance
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 20100 - Modern Dance Technique II

- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 24000 - Dance Composition
- DANC 24500 - Practicum In Dance Performance And Production
- DANC 30100 - Modern Dance Techniques III
- DANC 34500 - Choreography
- DANC 34600 - Intermediate Choreography
- ECON 21000 - Principles Of Economics
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ECON 30100 - Managerial Economics
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36100 - Antitrust And Regulation
- ECON 36200 - Health Economics
- ECON 36500 - History Of Economic Thought
- ECON 36700 - Law And Economics
- ECON 37000 - International Trade
- 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 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- ECON 51200 - Intermediate Economics II
- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 20500 - Introduction To Creative Writing
- ENGL 21500 - Inventing Languages
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 21800 - Figures Of Myth And Legends II: Heroes And Villains
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22700 - Elements Of Linguistics
- ENGL 22800 - Language And Social Identity
- ENGL 22900 - Creole Languages And Cultures
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- ENGL 23700 - Introduction To Poetry

- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- ENGL 30100 - Ways Of Reading
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Digital Design And Production
- ENGL 31600 - Craft Of Fiction From A Writer's Perspective
- ENGL 31700 - Craft Of Poetry From a Writer's Perspective
- ENGL 32200 - Word, Image, Media
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 32900 - English Language III: Sound And Form
- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33200 - Games And User Experience (UX)
- ENGL 34100 - Topics In Science, Literature, And Culture
- ENGL 34200 - Legal Fictions
- ENGL 34300 - Labor And Literature
- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- ENGL 34500 - Games And World Building
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian 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 36700 - Mystery And Detective Fiction
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37401 - Studies In British Literary History
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37800 - Studies In American Literary History
- ENGL 37900 - The Short Story
- ENGL 38000 - Issues In Rhetoric And Public Life

- 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 39200 - Young Adult Literature
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- 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 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- 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 47000 - Advanced Topics In Rhetorical Studies
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- FR 10100 - French Level I
- FR 10200 - French Level II
- FR 10500 - Accelerated Basic French
- FR 11200 - Elementary French Conversation
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 20500 - Accelerated Intermediate French
- FR 21200 - Intermediate French Conversation
- FR 22400 - Professional French I
- 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 31200 - Advanced French Conversation
- 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 42400 - Professional French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FS 47000 - Wine Appreciation
- FVS 26100 - Foundations Of Cinema Production
- FVS 33600 - Screenwriting
- GER 10100 - German Level I
- GER 10200 - German Level II
- GER 10500 - Accelerated Basic German
- GER 11200 - Elementary German Conversation
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 20500 - Accelerated Intermediate German
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Science And Engineering
- 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
- 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 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
- 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 34300 - Greek Oratory
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 35400 - Greek Comedy
- GREK 44600 - Greek Historians
- GREK 49000 - Directed Reading In Classical Greek
- GREK 59000 - Directed Reading In Classical Greek
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 22500 - Human Development Across Cultures
- HDFS 28000 - Diversity In Individual And Family Life
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 31300 - Adolescent Development

- HDFS 31400 - Atypical Child Development
- HDFS 32500 - Health And Health Care For Children And Families
- HDFS 33000 - Sexuality And Family Life
- HDFS 33200 - Stress And Coping In Contemporary Families
- HDFS 34800 - Administration Of Social Service Not-For-Profit Organizations
- HDFS 41800 - Understanding Autism
- 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
- HEBR 38000 - Israel And The Modern World: Cinema, Literature, History And Politics
- HEBR 38300 - Kabbalah And Jewish Mysticism: Secret Knowledge In Judaism
- HEBR 38500 - The Holocaust In Modern Hebrew Literature
- 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 22100 - History Behind The Headlines
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23005 - Hitler's Europe
- 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 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 27800 - Money, Trade, And Power: The History Of Capitalism
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30105 - Big History: Time And Scale
- HIST 30200 - Historical Topics
- HIST 30305 - Food In Modern America
- HIST 30400 - America In The 1960s
- HIST 30505 - The United States In The World 1898-Present
- HIST 30605 - Technology And War In U.S. History
- HIST 30805 - History Of Life Sciences
- HIST 30905 - History Of Environmental Science
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877

- HIST 31205 - The Arab-Israeli Conflict
- HIST 31305 - Medical Devices And Innovation
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31505 - American Beauty
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31905 - Christianity In The Global Age
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32900 - History Of Women In Modern Europe
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 33505 - Nationalism And Socialism In East Central Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33805 - History Of Human Rights
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34505 - Arabs In American Eyes
- HIST 34705 - History Of Religion In America
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 35305 - Sports In America
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35900 - Gender In East Asian History
- HIST 36305 - The History Of Medicine And Public Health
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37005 - Queens And Empresses In Early Modern Europe
- 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 38105 - American Indians And Film
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History
- HIST 38400 - History Of Aviation
- HIST 38505 - Media, Politics And Popular Culture
- HIST 38605 - Land Of The Indians: Native Americans In Indiana
- HIST 38700 - History Of The Space Age
- HIST 39400 - Environmental History Of The United States
- HIST 39600 - African American History To 1877

- HIST 39800 - African American History Since 1877
- HIST 40000 - Great Books And The Search For Meaning
- HIST 40300 - Europe In The Reformation
- 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 41005 - History Of The American Presidency
- HIST 41300 - Modern European Imperialism: Repression And Resistance
- HIST 41505 - Gender And Politics In Early Modern Europe
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 43900 - Communist China
- HIST 44100 - Africa In The Twentieth Century
- HIST 45000 - The English Landscape: Integrating History, Horticulture & Landscape Architect
- 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 47005 - Women And Health In America
- HIST 47300 - History Of The South
- HIST 47600 - The Civil War In Myth And Memory
- HIST 47700 - Native American Women's History
- HIST 48005 - Madness And The Asylum In The United States
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49200 - Seminar In Historical Topics
- HIST 49400 - Science And Society In American Civilization
- IDIS 20100 - Introduction To Digital Humanities
- 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 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- 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 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
- 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 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 36300 - Relationship Of Japanese Language And Society
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48500 - Culinary Culture Of Japan
- JPNS 49000 - Special Topics In Japanese Language
- JWST 33000 - Introduction To Jewish Studies
- LATN 10100 - Latin Level I
- LATN 10200 - Latin Level II
- LATN 10500 - Accelerated Basic Latin
- 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
- 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 23100 - Fairytale, Folktale, Fable
- LC 23500 - East Asian Literature In Translation
- LC 23700 - Our Common Bond: Languages And Cultures In A Global Context
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages

- LC 26600 - World Literature: From The Beginnings to 1700 A D
- LC 26700 - World Literature: From 1700 A D To The Present
- LC 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 33800 - Language Through Films
- 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
- LING 20100 - Introduction To Linguistics
- LING 31100 - Fundamentals Of Phonology And Morphology
- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- LING 36800 - Sociolinguistic Study Of African American English
- MARS 22000 - Introduction To Medieval And Renaissance Studies
- MGMT 17500 - Information Strategies For Management
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 21200 - Business Accounting
- MGMT 22000 - Making The Business Case
- MGMT 24200 - Contemporary Problems In Personal Finance For Minorities
- MGMT 24300 - Contemporary Thought Of Minorities In Management
- MGMT 25400 - Legal Foundations Of Business I
- MGMT 26100 - Introduction To Supply Chain Management
- MGMT 28500 - Knowledge Management
- MGMT 29400 - Navigating Gender In The Workplace
- MGMT 29450 - Leadership Development To Bridge Gender Divide
- MGMT 30400 - Introduction To Financial Management
- MGMT 31000 - Financial Management
- MGMT 32300 - Principles Of Marketing
- MGMT 33100 - Development And Impact of Equal Employment Law
- MGMT 42810 - Pricing Strategy And Analysis
- MGMT 44433 - Leading And Working In Teams
- MGMT 45500 - Legal Background For Business I
- MGMT 46600 - Project Management
- MUS 25000 - Music Appreciation
- MUS 34100 - Music Composition I
- MUS 34200 - Music Composition II
- MUS 37500 - Selected Topics In 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
- MUS 49000 - Guided Reading In Music
- OBHR 33000 - Introduction To Organizational Behavior
- OBHR 42900 - Labor Relations
- OBHR 49000 - Problems In Organizational Behavior
- 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 20800 - Ethics Of Data Science
- 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
- 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 31000 - Classical Chinese Philosophy
- PHIL 32200 - Philosophy Of Technology
- PHIL 35000 - Philosophy And Probability
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40300 - Moral Psychology And Climate Change
- 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 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 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy

- POL 22800 - Data Science And Public 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
- 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 33500 - China And The Challenges Of Globalization
- 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 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- POL 40300 - Field Experience In Political Science
- 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 42500 - Environmental Law And Politics
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43500 - International Law
- POL 43900 - United States Foreign Policy Making
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- POL 49100 - Political Science Senior Seminar
- POL 49300 - Interdisciplinary Undergraduate Seminar
- PSY 10000 - Introduction To The Science And Fields Of Psychology
- PSY 12000 - Elementary Psychology
- PSY 20000 - Introduction To Cognitive 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 30500 - Understanding And Analyzing Psychological Data
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32700 - Psychology Of Helping
- 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 35400 - Close Relationships
- 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 43200 - Social Psychology In Film
- PSY 44300 - Aggression And Violence
- 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
- PTGS 23500 - Luso-Brazilian Literature In Translation
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20200 - Interpretation Of The Old Testament
- REL 20300 - Theology Of Paul
- REL 20400 - Introduction To Christian Theology
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- REL 25000 - A History Of The Christian Afterlife
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics
- REL 45100 - Christology

- REL 45200 - Systematic Theology
- 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 29800 - Special Topics In Russian
- 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 38000 - Russian Culture And Civilization I
- RUSS 38100 - Russian Culture And Civilization II
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 42400 - Business Russian
- 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 26700 - Religion In The Modern World
- SOC 27500 - Sociology Of Aging And The Life Course
- SOC 31000 - Race And Ethnicity
- 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 33500 - Political Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Sociology Of Global Development
- SOC 34000 - General Social Psychology
- SOC 34400 - Environmental Sociology
- SOC 35000 - Sociology Of Family
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 36900 - Religion And Chinese Society
- SOC 37400 - Medical Sociology
- SOC 37700 - Sociology Of Mental Health

- SOC 38300 - Introduction To Research Methods In Sociology
- SOC 39100 - Selected Topics In Sociology
- SOC 40200 - Sociological Theory
- SOC 40900 - Social Networks
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42100 - Juvenile Delinquency
- SOC 42300 - Field Practicum In Sociology And Law And Society
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 43200 - Work In Contemporary America
- SOC 45000 - Gender Roles In Modern Society
- SOC 49300 - Interdisciplinary Undergraduate Seminar
- SPAN 10100 - Spanish Level I
- SPAN 10200 - Spanish Level II
- SPAN 10500 - Accelerated Basic Spanish
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 20500 - Accelerated Intermediate Spanish
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 22400 - Spanish Level IV: Business Spanish
- 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 30500 - Spanish For Heritage Speakers
- SPAN 30801 - Advanced Spanish For Heritage Speakers
- SPAN 31200 - Advanced Spanish Conversation
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 32500 - Spanish For Engineering And Technology
- 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 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 48500 - Food And Culture In The Hispanic World
- THTR 13300 - Survey Of Acting
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 16400 - Introduction To Theatre Organization And Management
- THTR 20100 - Theatre Appreciation
- 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 38100 - History Of Theatre II
- 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
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies
- WGSS 38000 - Comparative Studies In Gender And Culture
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women, Work, And Labor
- WGSS 39000 - Variable Topics In Women's, Gender And Sexuality Studies
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality
- WGSS 48300 - Feminisms In Global Perspective

## **Electrical and Computer Engineering No Count List**

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

The following courses do not count:

- Remedial courses (Courses that start with start with zero - i.e. MET 09000)
- 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 10100 - Digital Literacy
- 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 15555 - Quantitative Reasoning
- MA 15800 - Precalculus - Functions And Trigonometry
- MA 16010 - Applied Calculus I



- MA 16020 - Applied Calculus II
- PHYS 21500 - Physics For Elementary Education
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II
- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 21400 - The Nature Of Physics

## **Electrical Engineering Electives**

### **Electrical Engineering Electives (6-9 credits)**

- 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.

### **EE Electives - Advanced-Level Labs (at least 3 courses)**

- ECE 30415 - Fiber Optics And Lasers Laboratory
- ECE 30417 - Engineering Optics Laboratory
- 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 39600 - Industrial Practice Seminar I
- ECE 41437 - ASIC Fabrication And Test I
- ECE 41438 - ASIC Fabrication And Test II
- 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 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

- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## EE Electives - "Special Content" Courses

- ECE 29600 - Electrical And Computer Engineering Projects
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition
- ECE 39600 - Industrial Practice Seminar I
- 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
- VIP 27920 - Sophomore Participation In Vertically Integrated Projects (VIP)
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## EE Elective Courses

- ECE 30412 - Electromagnetics II
- ECE 30414 - Elements Of Fiber Optics, Lasers And Optoelectronics
- ECE 30416 - Basics Of Engineering Optics
- ECE 30500 - Semiconductor Devices
- ECE 30834 - Fundamentals Of Computer Graphics
- ECE 31032 - Power Systems Engineering
- ECE 32100 - Electromechanical Motion Devices
- ECE 36800 - Data Structures
- ECE 38200 - Feedback System Analysis And Design
- ECE 40400 - Introduction To Computer Security
- ECE 40862 - Software For Embedded Systems
- ECE 43700 - Computer Design And Prototyping
- ECE 44100 - Distributed Parameter Systems
- 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 48300 - Digital Control Systems Analysis And Design
- 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 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

## **Microelectronics and Semiconductor Concentration for Computer Engineering**

Semiconductor chips form the backbone of the entire computing and electronics industries. This concentration in Microelectronics and Semiconductors provides transcriptable, specialized training in the design and manufacturing of advanced semiconductor chips with coursework focused on semiconductor devices, integrated circuits, integrated systems, and more.

## **Microelectronics and Semiconductor Concentration for Computer Engineering**

Semiconductor chips form the backbone of the entire computing and electronics industries. This concentration in Microelectronics and Semiconductors provides transcriptable, specialized training in the design and manufacturing of advanced semiconductor chips with coursework focused on semiconductor devices, integrated circuits, integrated systems, and more.

### **Electives (9 credits):**

Must complete a minimum of 9 credits from the Elective courses below. VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 30500 - Semiconductor Devices
- ECE 33700 - ASIC Design Laboratory
- ECE 43700 - Computer Design And Prototyping
- ECE 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 55700 - Integrated Circuit Fabrication Laboratory

- ECE 55900 - MOS VLSI Design
- ECE 56800 - Embedded Systems
- ECE 59500 - Selected Topics In Electrical Engineering Qualifying Titles: Qualifying Titles: CMOS Analog IC Design (3 credits); Digital Systems Design Automation (3 credits); Microfabrication Fundamentals (1 credit); Semiconductor Fundamentals (1 credit); Semiconductor Manufacturing (1 credit); Theory & Practice of Solar Cells: A Cell to System Perspec (1 credit); MEMS-I: Microfabrication and Materials for MEMS (1 credit); Fundamentals of Current Flow (1 credit); Introduction to Quantum Transport (1 credit); Boltzmann Law: Physics to Computing (1 credit); Primer on Semiconductors (1 credit); Essentials of Transistors (1 credit); Advanced Lithography (1 credit)
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## Microelectronics and Semiconductors Concentration for Electrical Engineering

Semiconductor chips form the backbone of the entire computing and electronics industries. This concentration in Microelectronics and Semiconductors provides transcriptable, specialized training in the design and manufacturing of advanced semiconductor chips with coursework focused on semiconductor devices, integrated circuits, integrated systems, and more.

### Electives (9 credits):

Must complete a minimum of 9 credits from the Elective courses below. VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 30500 - Semiconductor Devices
- ECE 33700 - ASIC Design Laboratory
- ECE 36200 - Microprocessor Systems And Interfacing
- ECE 43700 - Computer Design And Prototyping
- ECE 45500 - Integrated Circuit Engineering
- ECE 45600 - Digital Integrated Circuit Analysis And Design
- ECE 49600 - Electrical And Computer Engineering Projects
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- ECE 55900 - MOS VLSI Design
- ECE 56800 - Embedded Systems
- ECE 59500 - Selected Topics In Electrical Engineering Qualifying Titles: CMOS Analog IC Design (3 credits); Digital Systems Design Automation (3 credits); Microfabrication Fundamentals (1 credit); Semiconductor Fundamentals (1 credit); Semiconductor Manufacturing (1 credit); Theory & Practice of Solar Cells: A Cell to System Perspec (1 credit); MEMS-I: Microfabrication and Materials for MEMS (1 credit); Fundamentals of Current Flow (1 credit); Introduction to Quantum Transport (1 credit); Boltzmann Law: Physics to Computing (1 credit); Primer on Semiconductors (1 credit); Essentials of Transistors (1 credit); Advanced Lithography (1 credit)

# Quantum Technology Concentration for Electrical Engineering

The Quantum Technology concentration will introduce students to the fundamental concepts and engineering challenges of various emerging technologies, including quantum computers, quantum communication systems, and quantum sensors. Students will also gain further training on classical engineering topics that will prepare them to understand and work with emerging quantum technologies.

## Quantum Technology Concentration for Electrical Engineering

The Quantum Technology concentration will introduce students to the fundamental concepts and engineering challenges of various emerging technologies, including quantum computers, quantum communication systems, and quantum sensors. Students will also gain further training on classical engineering topics that will prepare them to understand and work with emerging quantum technologies.

### Concentration Courses (9-10 credits)

#### EE Advanced Selectives - Choose one (3-4 credits)

- ECE 30412 - Electromagnetics II
  - ECE 44000 - Transmission Of Information
  - ECE 30500 - Semiconductor Devices
- OR
- ECE 50631 - Fundamentals Of Current Flow and
  - ECE 50632 - Introduction To Quantum Transport and
  - ECE 50633 - Boltzmann Law: Physics To Computing

#### Selectives (6 credits)

- ECE 39595 - Selected Topics In Electrical And Computer Engineering Titles: Fundamentals of Quantum Technology; Introduction to Nanotechnology and Quantum Science and Technology
- ECE 50631 - Fundamentals Of Current Flow and
- ECE 50632 - Introduction To Quantum Transport and
- ECE 50633 - Boltzmann Law: Physics To Computing
- ECE 59500 - Selected Topics In Electrical Engineering Titles: Introduction to Quantum Science and Technology; Applied Quantum Computing I: Fundamentals; Applied Quantum Computing II: Hardware; Applied Quantum Computing III: Algorithm and Software; Quantum Optics  
**Can be used with prior approval** - VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- ECE 49600 - Electrical And Computer Engineering Projects

Note:

If ECE 50631 +50632+ 50633 are used as an EE Advanced Selective, they may not be used below as an EE Elective.

## **Software Engineering Concentration for Computer Engineering**

The Software Engineering Concentration prepares students to work in software-oriented jobs or research areas. It covers topics in software engineering (how do you build good software) and software tools (what modern frameworks do software developers need to know), as well as electives that give students an opportunity to hone their software development skills.

### **Software Engineering Concentration Courses (10 credits)**

#### **Required Course (1 credit)**

- ECE 30864 - Software Engineering Tools

#### **Selectives (6 credits)**

VIP (Vertical Integrated Projects) and ECE 49600 Undergraduate Research may be taken for a maximum of 3 credits toward the selectives upon approval of the Associate Head of Undergraduate Programs or the Associate Head of Teaching and Learning. If VIP or ECE 49600 are used to satisfy the selective requirement, they may not be used to meet the Elective credit below.

- ECE 46100 - Software Engineering or
- ECE 59500 - Selected Topics In Electrical Engineering Title: Advanced Software Engineering
- ECE 49595 - Selected Topics In Electrical And Computer Engineering Title: Open Source Software Senior Design
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- ECE 49600 - Electrical And Computer Engineering Projects

#### **Electives (3 credits)**

VIP (Vertical Integrated Projects) and ECE 49600 Undergraduate Research may be taken for a maximum of 3 credits toward the electives upon approval of the Associate Head of Undergraduate Programs or the Associate Head of Teaching and Learning. If VIP or ECE 49600 are used to satisfy the above selectives requirement, they may not be used to meet the Elective credit below.

- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 40400 - Introduction To Computer Security
- ECE 46900 - Operating Systems Engineering
- ECE 46800 - Introduction To Compilers And Translation Engineering or
- ECE 57300 - Compilers And Translator Writing Systems
- ECE 51220 - Applied Algorithms
- ECE 49600 - Electrical And Computer Engineering Projects
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

# **Wireless & Optical Engineering Concentration for Electrical Engineering**

The Wireless & Optical Engineering Concentration introduces students to the fundamental concepts and engineering challenges associated with semiconductor manufacturing, renewable energy, military and defense needs. It prepares students for employment in both private industry and the government sector, fiber optics communications, imaging, display and virtual reality technologies, sensors, laser, and LIDAR, and RF security and wireless systems. In addition, completing this minor will provide students with a firm foundation to pursue a graduate education focused on fields and/or optics that may include theoretical, simulation, and experimentally-based research projects.

## **Wireless & Optical Engineering Concentration (10 credits)**

### **Required Course (3 credits)**

- ECE 30412 - Electromagnetics II

### **Selective Lab - Choose One (1 credit)**

- ECE 30415 - Fiber Optics And Lasers Laboratory
- ECE 30417 - Engineering Optics Laboratory
- ECE 30700 - Electromagnetic Fields And Waves Laboratory

### **Selectives (6 credits)**

VIP (Vertically Integrated Projects) and ECE 49600 Undergraduate Projects may be taken for a maximum of 3 credits toward the concentration upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 30414 - Elements Of Fiber Optics, Lasers And Optoelectronics
- ECE 30416 - Basics Of Engineering Optics
- ECE 30500 - Semiconductor Devices
- ECE 44100 - Distributed Parameter Systems
- ECE 49600 - Electrical And Computer Engineering Projects
- ECE 50616 - Physics And Manufacturing Of Solar Cells
- ECE 55200 - Introduction To Lasers
- ECE 59500 - Selected Topics In Electrical Engineering Qualifying Title: Magnetic Resonance Imaging Theory (3 credits)
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)

## **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/Engineering Science Studies Concentration, 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

Interdisciplinary Engineering Studies Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Interdisciplinary Engineering Studies Major Requirements (10 Credits)

### Statistics

- IE 23000 - Probability And Statistics In Engineering I ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IDE 36000 - Multidisciplinary Engineering Statistics ♦

### Engineering Economics

- IE 34300 - Engineering Economics ♦ or
- ECON 25100 - Microeconomics ♦ and
- ECON 25200 - Macroeconomics ♦
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- Engineering Design Course (3 credits) - *see Interdisciplinary Engineering Studies Supplemental Information for course list*

## Engineering Science Studies Concentration (52-53 credits)

- Engineering Elective - Credit Hours: 20.00 (*see Multidisciplinary Engineering Supplemental Information*)

- CM 16400 - Graphics For Civil Engineering And Construction or
- Area Elective - Credit Hours: 30.00 (*see Multidisciplinary Engineering Supplemental Information*)
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting

## Other Program/Departmental Requirements (58-71 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (11-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations

### General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Science for core*)
- General Education II - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education III - Credit Hours: 3.00 (*satisfies Science, Technology & Society for core*)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00 (General Education Elective)

## Interdisciplinary Engineering Information

## Supplemental List

LINK

## Grade Requirements

- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required for the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.

## GPA Requirements

- 2.0 Graduation GPA required for the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- 2.0 Engineering GPA required in the 30 credits of 20000+ level engineering courses counted towards the Bachelor of Science degree, Interdisciplinary Engineering Studies major.

## Course Requirements and Notes

- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.

## Pass/No Pass Policy

- No courses counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major, may be taken for a P/NP grade.

## Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major, must transfer from an ABET accredited program.
- A student that is awarded the Bachelor of Science degree (BS), Interdisciplinary Engineering Studies major, may not then re-enroll at Purdue and use those courses to count towards the Bachelor of Science in Engineering Degree (BSE), Multidisciplinary Engineering major.
- The Bachelor of Science (BS) Degree, Interdisciplinary Engineering Studies major, is not an ABET-accredited program

## University Requirements

## University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

## 16 Credits

### Sample Interdisciplinary Engineering Studies Plan of Study

#### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- Area Elective - Credit Hours: 3.00
- Engineering Elective (20000+ level) - Credit Hours: 3.00
- Sophomore Science Selective - Credit Hours: 3.00

## 16 Credits

#### Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations
- Engineering Elective (20000+level) - Credit Hours: 2.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00

## 15 Credits

## Fall 3rd Year

- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- General Education I (HUM-Humanities) - Credit Hours: 3.00

## 15 Credits

## Spring 3rd Year

- IE 23000 - Probability And Statistics In Engineering I or
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 33000 - Probability And Statistics In Engineering II
- Area Elective - Credit Hours: 3.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- General Education II (BSS - Humanities: Behavioral/Social Sciences) - Credit Hours: 3.00
- General Education IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

## Fall 4th Year

- IE 34300 - Engineering Economics  
OR
- ECON 25100 - Microeconomics and
- ECON 25200 - Macroeconomics
- Area Elective - Credit Hours: 3.00
- Engineering Design Selective - Credit Hours: 3.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

## 15-18 Credits

## Spring 4th Year

- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Elective (30000+ level) - Credit Hours: 3.00
- Engineering Elective (30000+ level) - Credit Hours: 3.00
- General Education V (30000+ level/Non-Introductory) - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

# Interdisciplinary Engineering Studies/Pre-Med Concentration, 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

Interdisciplinary Engineering Studies Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Interdisciplinary Engineering Studies Major Requirements (10 Credits)

### Statistics

- IE 23000 - Probability And Statistics In Engineering I ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IDE 36000 - Multidisciplinary Engineering Statistics ♦

### Engineering Economics

- IE 34300 - Engineering Economics ♦ or
- ECON 25100 - Microeconomics ♦ and
- ECON 25200 - Macroeconomics ♦

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- Engineering Design Course (3 credits) - *see Interdisciplinary Engineering Studies Supplemental Information for course list*

## Pre-Med Concentration (52 credits)

### Engineering Electives (20 credits)

See Multidisciplinary Engineering Supplemental Information

### Area Electives (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
- BIOL (30000+ level) Including 2 hours of lab

#### **Anatomy & Physiology (recommended for the MCAT)**

- BIOL 20300 - Human Anatomy And Physiology and
- BIOL 20400 - Human Anatomy And Physiology

#### **General Chemistry with lab**

*CHM 11500/11600 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 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 For The Life Sciences I and
- CHM 25600 - Organic Chemistry For The Life Sciences II  
OR
- CHM 26100 - Organic Chemistry I and
- CHM 26200 - Organic Chemistry II  
OR
- CHM 26505 - Organic Chemistry I and
- CHM 26605 - Organic Chemistry II  
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
- 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 hour lab such as:*
- PHYS 25200 - Electricity And Optics Laboratory  
*First course generally accomplished through FYE curriculum.*

### **English** (if required usually need 2 semesters)

- 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
- 30000+level of SOC-Sociology or ANTH-Anthropology

#### **Statistics** (*recommended*)

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

#### **Pre-Med Planning Seminar** (*optional*)

- BIOL 39600 - Premedical Planning Seminar - Credit Hours: 0.00 (*10 week class covering how to apply to medical school and other health professions programs*)

## 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.

## Other Program/Departmental Requirements (58-71 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (11-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations

### General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Science for core*)
- General Education II - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education III - Credit Hours: 3.00 (*satisfies Science, Technology & Society for core*)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00 (General Education Elective)

## Interdisciplinary Engineering Information

## Supplemental List

LINK

## Grade Requirements

- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required for the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.

## GPA Requirements

- 2.0 Graduation GPA required for the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- 2.0 Engineering GPA required in the 30 credits of 20000+ level engineering courses counted towards the Bachelor of Science degree, Interdisciplinary Engineering Studies major.

## Course Requirements and Notes

- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major.

## Pass/No Pass Policy

- No courses counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major, may be taken for a P/NP grade.

## Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science (BS) degree, Interdisciplinary Engineering Studies major, must transfer from an ABET accredited program.
- A student that is awarded the Bachelor of Science degree (BS), Interdisciplinary Engineering Studies major, may not then re-enroll at Purdue and use those courses to count towards the Bachelor of Science in Engineering Degree (BSE), Multidisciplinary Engineering major.
- The Bachelor of Science (BS) Degree, Interdisciplinary Engineering Studies major, is not an ABET-accredited program

# University Requirements

## University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

## 16 Credits

### Sample Interdisciplinary Engineering Studies Plan of Study

#### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- Area Elective (should be pre-med focused) - Credit Hours: 4.00
- Area Elective (should be pre-med focused) - Credit Hours: 1.00
- Engineering Elective (20000+ level) - Credit Hours: 3.00
- Sophomore Science Selective - Credit Hours: 3.00

## 16 Credits

#### Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations
- Engineering Elective (20000+level) - Credit Hours: 2.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- Area Elective (should be pre-med focused) - Credit Hours: 4.00
- Area Elective (should be pre-med focused) - Credit Hours: 2.00

## 15 Credits

### Fall 3rd Year

- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- General Education (Humanities) - Credit Hours: 3.00

## 15 Credits

### Spring 3rd Year

- IE 23000 - Probability And Statistics In Engineering I or
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 33000 - Probability And Statistics In Engineering II
- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Engineering Elective (20000+level) - Credit Hours: 3.00
- General Education Elective (30000+ or non-intro) - Credit Hours: 3.00
- General Education Elective (BSS) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

- IE 34300 - Engineering Economics  
OR
- ECON 25100 - Microeconomics and
- ECON 25200 - Macroeconomics
- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Engineering Design Selective) - Credit Hours: 3.00
- General Education Elective (STS) - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

## 15 Credits

### Spring 4th Year

- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Area Elective (should be pre-med focused) - Credit Hours: 3.00
- Engineering Elective (30000+ level) - Credit Hours: 3.00
- Engineering Elective (30000+ level) - Credit Hours: 3.00
- General Education Elective (30000+ or non-intro) - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Multidisciplinary Engineering/Acoustical Engineering Concentration, BSE

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

### Degree Requirements

## 120 Credits Required

### Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)



- 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- ME 27400 - Basic Mechanics II ♦
- **Linear Circuits**
- ECE 20001 - Electrical Engineering Fundamentals I
- **Fluids**
- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦
- **Engineering Materials**
- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦
- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I
- **Engineering Economics**
- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦

### **Capstone Senior Design**

- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Acoustical Engineering Concentration (32 credits)

**Choose one option:** Sound System or Vibrational

### Sound System Option (32 credits)

**Area Electives** - Credit Hours: 8.00 (see Supplemental List)

**Engineering Design Course** - Credit Hours: 3.00

- ME 41300 - Noise Control
- **Engineering Electives** - Credit Hours: 5.00 (see Supplemental List)
- **Engineering Selectives** - Credit Hours: 9.00
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems
- ECE 30411 - Electromagnetics I
- ECE 30500 - Semiconductor Devices
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 32100 - Electromechanical Motion Devices
- ECE 45300 - Fundamentals Of Nanoelectronics
- **Theatre Selectives** (2-3 credits)
- THTR 16300 - Introduction To Sound Design And Technology or
- THTR 26300 - Introduction To Sound Studios
- **Additional Theatre Selective**- Credit Hours: 4.00-5.00
- THTR 25300 - Survey Of Audio Production
- THTR 35300 - Theatre 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

### Vibrational Option (32 credits)

**Area Selectives** - Credit Hours: 11.00 *Additional THTR or SLHS courses are recommended* (see Supplemental List)

- **Engineering Design Course** - Credit Hours: 3.00
- ME 41300 - Noise Control
- **Engineering Electives** - Credit Hours: 11.00 (see Supplemental Information)
- **Engineering Selective** - Credit Hours: 3.00
- CE 31100 - Architectural Engineering or
- ME 51300 - Engineering Acoustics
- **Theatre Selective** - Credit Hours: 2.00-3.00
- THTR 16300 - Introduction To Sound Design And Technology or
- THTR 25300 - Survey Of Audio Production
- **Additional Theatre Selective** - Credit Hours: 1.00-2.00
- THTR 26300 - Introduction To Sound Studios
- THTR 35300 - Theatre Audio Techniques I
- THTR 36300 - Sound Design
- THTR 36800 - Theatre Production II
- THTR 55300 - Theatre Audio Technology II
- THTR 56900 - Special Problems In Audio Production
- THTR 59700 - Production And Design Seminar
- DANC 36800 - Dance Sound Design

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200 - 2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200 - 1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

## 16 Credits

### Sample Multidisciplinary Engineering Plan of Study/Acoustical Engineering Concentration (Sound Systems)

#### Fall 2nd Year

- **Linear Circuits:** ECE 20001 - Electrical Engineering Fundamentals I  
**Engineering Elective** - Credit Hours: 1.00 (Meets 1 credit lab if ECE 20007)
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus  
**Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- CE 29700 - Basic Mechanics I (Statics)  
**Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

## 15-16 Credits

### Spring 2nd Year

- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting  
**Theatre Selective**
- THTR 16300 - Introduction To Sound Design And Technology or
- THTR 26300 - Introduction To Sound Studios
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations  
**Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials  
**Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics

## 14-19 Credits

### Fall 3rd Year

- Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- Engineering Selective - Credit Hours: 3.00
- General Education Elective II (HUM - Humanities) - Credit Hours: 3.00
- Additional Theatre Selective - Credit Hours: 3.00

## 15-16 Credits

### Spring 3rd Year

#### **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II

#### **Engineering Design**

- ME 41300 - Noise Control
- Engineering Elective - Credit Hours: 3.00
- General Education Elective I (BSS-Human Cultures: Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00
- Additional Theatre Selective - Credit Hours: 1.00-2.00

### 16 Credits

#### Fall 4th Year

#### **Engineering Economics**

- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- IE 34300 - Engineering Economics
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development
- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- General Education Elective (STS) - Credit Hours: 3.00
- **Senior Capstone I** IDE 48400 - Multidisciplinary Engineering Design Methodology

### 15-17 Credits

#### Spring 4th Year

- Area Elective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- General Education Elective IV (30000+leve/Non-Introductory) - Credit Hours: 3.00
- General Education Elective V (30000+leve/Non-Introductory) - Credit Hours: 3.00
- **Senior Capstone II** IDE 48500 - Multidisciplinary Engineering Design Project

### 15 Credits

## Sample Multidisciplinary Engineering Plan of Study/Acoustical Engineering Concentration (Vibrational)

#### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
  - MA 26100 - Multivariate Calculus
- #### **Thermodynamics**
- ME 20000 - Thermodynamics I or



- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- Sophomore Science Selective
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions
- **Theatre Selective**
- THTR 16300 - Introduction To Sound Design And Technology or
- THTR 25300 - Survey Of Audio Production

## 16-19 Credits

### Spring 2nd Year

- **Linear Circuits** ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- CM 16400 - Graphics For Civil Engineering And Construction or
- CGT 11100 - Designing For Visualization And Communication or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- MA 26200 - Linear Algebra And Differential Equations
- OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- **Statics and Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics
- Additional Theatre Selective - Credit Hours: 1.00-2.00

## 14-16 Credits

### Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- **Engineering Materials**
- NUCL 27300 - Mechanics Of Materials
- **Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or

- MSE 34000 - Transport Phenomena
- Engineering Elective - Credit Hours: 3.00
- General Education Electives II (HUM-Humanities) - Credit Hours: 3.00

## 13-14 Credits

### Spring 3rd Year

- **Engineering Design**
- ME 41300 - Noise Control
- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Area Elective - Credit Hours: 2.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective I (BSS - Human Cultures: Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

## 17 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development
- **Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- IE 34300 - Engineering Economics
- **Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- **Engineering Selective**
- CE 31100 - Architectural Engineering or
- ME 51300 - Engineering Acoustics
- Area Elective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education (STS) - Credit Hours: 3.00

## 15-17 Credits

### Spring 4th Year

- **Senior Capstone II**
- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 2.00
- General Education (30000+leve/Non-Introductory) - Credit Hours: 3.00
- General Education (30000+leve/Non-Introductory) - Credit Hours: 3.00

17 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

# Multidisciplinary Engineering/Educational Engineering Concentration, BSE

## 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

Multidisciplinary Engineering Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)

- 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- ME 27400 - Basic Mechanics II ♦
- **Linear Circuits**
- ECE 20001 - Electrical Engineering Fundamentals I
- **Fluids**
- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦
- **Engineering Materials**
- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦
- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I
- **Engineering Economics**
- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦

### **Capstone Senior Design**

- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Educational Engineering Concentration (35 credits)

**Required Courses** - Credit Hours: 3.00 (also meets 3 credits for Gen Ed)

- EDPS 23500 - Learning And Motivation  
Area Electives - Credit Hours: 3.00  
**Education Methods Selective** - Credit Hours: 3.00
- 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 Secondary Mathematics - Methods I
- EDCI 42600 - Teaching Of Secondary Mathematics - Methods II
- EDCI 42800 - Teaching Science In The Middle And Junior High School  
**Education Selectives** - Credit Hours: 9.00
- 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
- HDF5 21000 - Introduction To Human Development  
**Engineering Design Selective** - Credit Hours: 3.00
- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS  
**Engineering Electives** - Credit Hours: 8.00  
**ENE Engineering Selective** - Credit Hours: 3.00
- ENE 49800 - Undergraduate Research In Engineering Education
- ENE 50200 - History And Philosophy Of Engineering Education
- ENE 59000 - Special Problems In Engineering Education
- IDE 38500 - Design Methodologies For Diverse Stakeholders  
**Independent Study** - Credit Hours: 3.00

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

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

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

- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Supplemental List

[Click here for Multidisciplinary Engineering Supplemental Information](#)

## Grade Requirements

- Must have C- or better in general education electives.
- Must have C- or better in capstone prep (IDE 48400 or EPCS 41200) to advance to capstone course.
- Must have C- or better in capstone design to meet graduation requirements.

## GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering Degree.

## Course Requirements and Notes

*Double-counting policy - where is it allowed and not allowed; specific notes or requirements about courses; repeatable limits, study abroad, etc.*

## Non-course / Non-credit Requirements

*Degree requirements which are not associated to a course. For example: portfolio, work experience, certifications. Should equal 0 credits.*

## Pass/No Pass Policy

- No courses can be taken for pass/no pass.

## Transfer Credit Policy

*College, department, major transfer credit (including any/all undistributed credit, TR graded course, AP/IB credit, etc.) should be clearly stated. Can transfer credit be applied to the major? If yes, how and where?*

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

**The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.**

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or

- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Additional Information

*Any additional information that does not fit into any of the categories above.*

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II



16 Credits

## Sample Multidisciplinary Engineering Plan of Study/Engineering Education Concentration

### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 27200 - Electric And Magnetic Interactions  
OR
- PHYS 24100 - Electricity And Optics and
- PHYS 25200 - Electricity And Optics Laboratory

17-19 Credits

### Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- Education Selective - Credit Hours: 3.00
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- **Statics and Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics

14-16 Credits

## Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- EPCS 30100 - Junior Participation In EPICS
- Education Selective - Credit hours: 3.00
- General Education (Humanities) - Credit Hours 3.00

### **Fluids**

- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena

### **Engineering Materials**

- AAE 20400 - Aeromechanics II or
- CE 23100 - Engineering Materials I or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials

14 Credits

## Spring 3rd Year

- EDPS 23500 - Learning And Motivation
- EPCS 30200 - Junior Participation In EPICS
- Area Elective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

### **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II

17 Credits

## Fall 4th Year

### **Senior Capstone I**

- EPCS 41200 - Senior Design Participation In EPICS
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development

### **Engineering Economics**

- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- IE 34300 - Engineering Economics
- Engineering Selective - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

## 16-18 Credits

### Spring 4th Year

#### **Senior Capstone II**

- EPCS 41200 - Senior Design Participation In EPICS
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00
- Education Selective - Credit Hours: 3.00
- Educational Methods Selective - Credit Hours: 3.00

## 14 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Multidisciplinary Engineering Information

#### **Supplemental List**

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

#### **Grade Requirements**

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

#### **GPA Requirements**

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200 - 2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200 - 1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## Multidisciplinary Engineering/Engineering Management Concentration, BSE

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

### Degree Requirements

## 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline
  
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- ME 27400 - Basic Mechanics II ♦
  
- **Linear Circuits**
- ECE 20001 - Electrical Engineering Fundamentals I
- **Fluids**
- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦
- **Engineering Materials**
- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦
- **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I
- **Engineering Economics**
- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦
- **Capstone Senior Design**
- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)
- OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦
- OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Engineering Management Concentration (32 credits)

- Area Selectives - Credit Hours 15.00
- Engineering Design Selective - Credit Hours: 3.00
- Engineering Electives - Credit Hours: 14.00

The Engineering Management Concentration requires one of the following:

- A minor in Management
- A minor in Organizational Leadership
- A Certificate of Entrepreneurship and Innovation with an additional 6 credits of MGMT, TLI or ENTR (other than ENTR 20000 or 31000)

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus

- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200 - 2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200 - 1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement



- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Multidisciplinary Engineering Plan of Study/ Engineering Management Concentration

### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering

- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

## 16-19 Credits

### Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MA 26200 - Linear Algebra And Differential Equations
- **Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- Area Selective (MGMT, OLS, ENTR, or TLI) - Credit Hours: 3.00
- CE 29800 - Basic Mechanics II Dynamics

## 14 Credits

### Fall 3rd Year

- **Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena
- **Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- CE 34300 - Elementary Hydraulics Laboratory
- Area Selective (MGMT, OLS, ENTR, or TLI) - Credit Hours: 3.00

- Engineering Electives - Credit Hours: 3.00
- General Education (Humanities) - Credit Hours: 3.00

## 16-17 Credits

### Spring 3rd Year

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Engineering Elective - Credit Hours: 3.00
- Engineering Design Selective - Credit Hours: 3.00
- General Education (BSS) - Credit Hours: 3.00
- General Education (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology  
**Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- Area Selective (MGMT, OLS, ENTR, or TLI) - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective (STS) - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- IE 34300 - Engineering Economics

## 15-17 Credits

### Spring 4th Year

- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Selective (MGMT, OLS, ENTR, or TLI) - Credit Hours: 3.00
- Area Selective (MGMT, OLS, ENTR, or TLI) - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education (30000+ level/Non-Introductory) - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Multidisciplinary Engineering/General Engineering Concentration, BSE

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

### Degree Requirements

## 120 Credits Required

### Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦

**Thermodynamics**

- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦

**Statics and Dynamics**

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

**Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I

**Fluids**

- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦

**Engineering Materials**

- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦

**Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I

**Engineering Economics**

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

**Capstone Senior Design**

- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and

- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## General Engineering Concentration (32 credits)

- Engineering Design Selective - Credit Hours: 3.00
- Follow-up Engineering Course - Credit Hours: 3.00
- Advanced Engineering Elective - Credit Hours: 3.00
- Engineering Electives - Credit Hours: 5.00
- Area Electives -Credit Hours: 3.00

## Advanced Engineering Elective (3 credits)

- AAE 30000 - 59999
- ABE 30000 - 59999
- BME 30000 - 59999
- CE 30000 - 59999
- CHE 30000 - 59999
- ECE 30000 - 59999
- EEE 30000 - 59999
- ENE 30000 - 59999
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 30000 - 59999
- IDE 30000 - 59999
- IE 30000 - 59999
- ME 30000 - 59999
- MSE 30000 - 59999
- NUCL 30000 - 59999

## Area Electives (15 credits)

### Beginning Engineering Selective (3 credits)

- AAE 33400 - Aerodynamics
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 20300 - Principles And Practice Of Geomatics
- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities

- CE 31100 - Architectural Engineering
- CE 35500 - Engineering Environmental Sustainability
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- CHE 20500 - Chemical Engineering Calculations
- ECE 26400 - Advanced C Programming
- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- IE 37000 - Manufacturing Processes I
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 36500 - Measurement And Control Systems I
- MSE 23000 - Structure And Properties Of Materials (if not used in Engineering Materials Selective)
- NUCL 20000 - Introduction to Nuclear Engineering

### Engineering Design Selective (3 credits)

### Engineering Electives (5 credits)

### Follow-up Engineering Selective (3 credits)

- AAE 33400 - Aerodynamics
- AAE 33800 - Thermal Sciences
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- BME 30400 - Biomedical Transport Fundamentals
- CHE 37800 - Heat And Mass Transfer
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 32100 - Electromechanical Motion Devices
- IE 33000 - Probability And Statistics In Engineering II
- IE 37000 - Manufacturing Processes I
- IE 38600 - Work Analysis And Design I
- IE 47000 - Manufacturing Processes II
- IE 48600 - Work Analysis And Design II
- ME 30000 - Thermodynamics II
- ME 31500 - Heat And Mass Transfer
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- MSE 27000 - Atomistic Materials Science
- NUCL 27300 - Mechanics Of Materials (if not used in Engineering Materials Selective)

### Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.



### **GPA Requirements**

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### **Course Requirements and Notes**

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200 - 2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200-1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### **Pass/No Pass Policy**

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

### **Transfer Credit Policy**

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## **Grade Requirements**

- Must have C- or better in general education electives.
- Must have C- or better in capstone prep (IDE 48400 or EPCS 41200) to advance to capstone course.
- Must have C- or better in capstone design to meet graduation requirements.

## **GPA Requirements**

- 2.0 Graduation GPA required for Bachelor of Science in Engineering Degree.
- Must have 2.0 GPA in Engineering classes 20000+ level.

## **Course Requirements and Notes**

*Double-counting policy - where is it allowed and not allowed; specific notes or requirements about courses; repeatable limits, study abroad, etc.*

## Non-course / Non-credit Requirements

*Degree requirements which are not associated to a course. For example: portfolio, work experience, certifications. Should equal 0 credits.*

## Pass/No Pass Policy

- No courses can be taken for pass/no pass.

## Transfer Credit Policy

*College, department, major transfer credit (including any/all undistributed credit, TR graded course, AP/IB credit, etc.) should be clearly stated. Can transfer credit be applied to the major? If yes, how and where?*

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

**The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.**

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Multidisciplinary Engineering Plan of Study / General Engineering Concentration

### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering

- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

16 Credits

## Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MA 26200 - Linear Algebra And Differential Equations
- **Statics and Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- CE 29800 - Basic Mechanics II Dynamics or
- ME 27400 - Basic Mechanics II
- Area Elective - Credit Hours: 3.00

14 Credits

## Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- Area Elective - Credit Hours: 3.00
- Beginning Engineering Selective - Credit Hours: 3.00
- General Education (Humanities) - Credit Hours: 3.00
- **Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena
- Engineering Materials
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or

- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials

## 16-17 Credits

### Spring 3rd Year

#### **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Engineering Design Selective - Credit Hours: 3.00
- Follow-up Engineering Selective - Credit Hours: 3.00
- General Education (BSS) - Credit Hours: 3.00
- General Education (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

#### **Senior Capstone I**

- IDE 48400 - Multidisciplinary Engineering Design Methodology
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development
- **Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- Area Elective - Credit Hours: 3.00
- Advanced Engineering Selective - Credit Hours: 3.00
- General Education (STS) - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- IE 34300 - Engineering Economics

## 15 Credits

### Spring 4th Year

#### **Senior Capstone II**

- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Elective - Credit Hours: 3.00
- Area Elective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education (30000+ level/Non-Introductory) - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

# Multidisciplinary Engineering/Humanitarian Engineering Concentration, BSE

## 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

Multidisciplinary Engineering Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline

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

**Thermodynamics**

- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦

**Statics and Dynamics**

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

**Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I

**Fluids**

- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦

**Engineering Materials**

- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦

**Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I

**Engineering Economics**

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

**Capstone Senior Design**

- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR

- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Humanitarian Engineering Concentration (32 credits)

### Area Electives - Humanitarian Interests (15 credits)

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 the understanding of languages, anthropology, cultures, geo political policy, religions, health and wellness, and/or aspects of military or medical aid.

### Engineering Design Selective (3 credits)

- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS

### Engineering Elective (2 credits)

### Engineering Selectives (6 credits)

Based on Subtopic: Water or Agriculture or Sanitation or Habit or Energy or Health

- ABE 30500 - Physical Properties Of Biological Materials
- ABE 32500 - Soil And Water Resource Engineering
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- EEE 35500 - Engineering Environmental Sustainability
- ENE 55400 - Globalization And Engineering
- IE 49000 - Special Topics In Industrial Engineering
- IE 59000 - Topics In Industrial Engineering
- ME 41500 - Energy Systems Engineering
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I

### Global Design Team (3 credits)

- ENGR 39697 - Global Engineering Projects Titles: Engineering & Public Health Infrastructure Resilience; Sustainable Construction & Community Empowerment
- ENGR 50000 - Global Design Team V
- GEP 40000 - Global Design Team IV



## Global Engineering Requirement (3 credits)

- ENGR 31000 - Engineering In Global Context

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

### General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Science for core*)
- General Education II - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education III - Credit Hours: 1.00-3.00 (*satisfies Science, Technology & Society for core*)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

**Supplemental List**

## Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200-2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200-1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)

- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Multidisciplinary Engineering Plan of Study/Humanitarian Engineering Concentration

Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

16-19 Credits

Spring 2nd Year

- **Linear Circuits**
- ECE 20001 - Electrical Engineering Fundamentals I

- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations  
**Statics and Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics
- Area Elective - Humanitarian Interests - Credit Hours: 3.00
- Area Elective - Humanitarian Interests - Credit Hours: 3.00

## 17-19 Credits

### Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- ENGR 31000 - Engineering In Global Context
- EPCS 30100 - Junior Participation In EPICS  
**Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- General Education Elective (HUM-Humanities) - Credit Hours: 3.00

## 14-15 Credits

### Spring 3rd Year

- **Engineering Design Selective II**
- EPCS 30200 - Junior Participation In EPICS  
**Global Design Team**
- ENGR 50000 - Global Design Team V - Credit Hours: 3.00  
**Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- General Education Elective (BSS) - Credit Hours: 3.00
- General Education Elective (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 14 Credits

## Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
**Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- Area Elective - Humanitarian Interests - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00
- General Education Elective - Credit Hours: 3.00

15 Credits

## Spring 4th Year

- **Senior Capstone II**
- Area Elective - Humanitarian Interests - Credit Hours: 3.00
- Area Elective - Humanitarian Interests - Credit Hours: 3.00
- Engineering Selective - Credit Hours: 3.00
- General Education (30000+ level/Non-Introductory - Credit Hours: 3.00
- IDE 48500 - Multidisciplinary Engineering Design Project

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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## **Multidisciplinary Engineering/Lighting Concentration, BSE**

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline
  
- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR

CE 29700 - Basic Mechanics I (Statics)♦ and  
ME 27400 - Basic Mechanics II♦

**Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I

**Fluids**

- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦

**Engineering Materials**

- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦

**Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I

**Engineering Economics**

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

**Capstone Senior Design**

- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Lighting Engineering Concentration (32 credits)

### Area Selectives (13 credits)

- CE 31100 - Architectural Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 51300 - Lighting In Buildings
- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 36200 - Light Design
- THTR 36800 - Theatre Production II
- THTR 56800 - Advanced Problems In Design

### ECE Required Course (3 credits)



- ECE 20002 - Electrical Engineering Fundamentals II

### ECE Selective (3 credits)

- ECE 29595 - Selected Topics In Electrical And Computer Engineering
- 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 Design Selective (4 credits)

- ECE 27000 - Introduction To Digital System Design

### Theatre Course (2 credits)

- THTR 16200 - Introduction To Light Design And Technology

### Engineering Electives (7 credits)

### Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or

- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200 - 2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200 - 1<sup>st</sup> time)
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## Non-course / Non-credit Requirements

*Degree requirements which are not associated to a course. For example: portfolio, work experience, certifications. Should equal 0 credits.*

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Multidisciplinary Engineering Plan of Study/ Lighting Engineering Concentration

### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering

- MA 26100 - Multivariate Calculus  
**Theatre Required Course**
- THTR 16200 - Introduction To Light Design And Technology  
**Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials  
**Statistics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)  
**Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

## 16-18 Credits

### Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MFET 16300 - Graphical Communication And Spatial Analysis or
- CM 16400 - Graphics For Civil Engineering And Construction or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations  
**Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics
- Area Selective - Credit Hours: 3.00

## 16-19 Credits

### Fall 3rd Year

- ECE Required Course
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 20008 - Electrical Engineering Fundamentals II Lab  
**Engineering Design Selective**
- ECE 27000 - Introduction To Digital System Design  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or

- CE 23100 - Engineering Materials I or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- General Education II (HUM-Human Cultures: Humanities) - Credit Hours: 3.00

## 14 Credits

### Spring 3rd Year

#### **Fluids**

- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena

#### **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- **ECE Selective** - Credit Hours: 3.00
- ECE 29595 - Selected Topics In Electrical And Computer Engineering - Credit Hours: 3.00
- 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
- General Education Elective I (BSS-Human Cultures:Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15-16 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development
- **Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making
- **Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- Area Selective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 4.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

## 15 Credits

### Spring 4th Year

#### **Senior Capstone II**

- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Selective - Credit Hours: 4.00
- Area Selective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00

16 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Multidisciplinary Engineering/Nano Engineering, BSE

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

### Degree Requirements

## 120 Credits Required

### Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
  - ABE 20100 - Thermodynamics In Biological Systems I ♦ or
  - ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
  - CE 21101 - Thermal And Energy Sciences ♦ or
  - CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
  - ME 20000 - Thermodynamics I ♦ or
  - MSE 26000 - Thermodynamics Of Materials ♦

**Statics and Dynamics**

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

**Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I

**Fluids**

- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦

**Engineering Materials**

- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦

**Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I



### **Engineering Economics**

- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦
- **Capstone Senior Design**
- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## **Nano Engineering Concentration (32 credits)**

### **Area Selectives - Choose one sequence (15 credits)**

#### **Chemistry Sequence (15 credits)**

- CHM 37300 - Physical Chemistry I
- CHM 37301 - Physical Chemistry Laboratory I
- CHM 37400 - Physical Chemistry II
- CHM 37401 - Physical Chemistry Laboratory II
- STEM Selectives - Credit Hours: 7.00

#### **Physics Sequence (15 credits)**

- PHYS 31000 - Intermediate Mechanics
- PHYS 34200 - Modern Physics
- PHYS 36000 - Quantum Mechanics
- STEM Selectives - Credit Hours: 5.00

#### **STEM Selectives**

- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges

### **Electrical or Materials Option - Choose one (17 credits)**

#### **Electrical Option (17 credits)**

#### **Required Courses (10 credits)**

- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 27000 - Introduction To Digital System Design

- ECE 31100 - Electric And Magnetic Fields

### Electrical Selectives (6 credits)

- ECE 30500 - Semiconductor Devices
- ECE 39595 - Selected Topics In Electrical And Computer Engineering ??? Titles ???Credits
- ECE 43500 - Object-Oriented Design Using C++ And Java

### Engineering Electives (1 credit)

- Engineering Electives - Credit Hours: 1.00

### Materials Options (17 credits)

#### Engineering Design Selective (3 credits)

- Engineering Design Selective - Credit Hours: 3.00

#### Materials Selective - Choose Four (12 credits)

- 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

#### Engineering Electives (2 credits)

- Engineering Electives - Credit Hours: 2.00

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)

- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200-2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200-1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### **Pass/No Pass Policy**

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### **Transfer Credit Policy**

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## Non-course / Non-credit Requirements

*Degree requirements which are not associated to a course. For example: portfolio, work experience, certifications. Should equal 0 credits.*

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Multidisciplinary Engineering Plan of Study/ Nano Engineering Concentration (Electrical)

Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

14-16 Credits

Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- MA 26200 - Linear Algebra And Differential Equations
- OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- **Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00

16-19 Credits

Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- ECE 20002 - Electrical Engineering Fundamentals II  
**Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- General Education II (HUM-Human Cultures: Humanities) - Credit Hours: 3.00

## 16-17 Credits

### Spring 3rd Year

- ECE 31100 - Electric And Magnetic Fields  
**Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Engineering Design Selective - Credit Hours: 3.00
- General Education Elective I (BSS-Human Cultures:Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
Engineering Economics
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making  
**Engineering Selectives**
- ECE 30500 - Semiconductor Devices or
- ECE 39595 - Selected Topics In Electrical And Computer Engineering - Credit Hours: 3.99 (Titles??)  
or
- ECE 43500 - Object-Oriented Design Using C++ And Java  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

## 15 Credits

## Spring 4th Year

### **Senior Capstone II**

- IDE 48500 - Multidisciplinary Engineering Design Project
- **Engineering Selective**
- ECE 30500 - Semiconductor Devices or
- ECE 39595 - Selected Topics In Electrical And Computer Engineering - Credit Hours: 3.00 (titles??) or
- ECE 43500 - Object-Oriented Design Using C++ And Java
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00

15 Credits

## Sample Multidisciplinary Engineering Plan of Study/ Nano Engineering Concentration (Materials)

### Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics & Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

14-16 Credits

### Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting



- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations  
**Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00

## 16-19 Credits

### Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- Engineering Electives - Credit Hours: 3.00  
**Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- General Education II (HUM-Human Cultures: Humanities) - Credit Hours: 3.00

## 16-17 Credits

### Spring 3rd Year

- Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Engineering Design Selective - Credit Hours: 3.00
- Materials Selective - Credit Hours: 3.00
- General Education Elective I (BSS-Human Cultures:Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
**Engineering Economics**

- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- Materials Selective - Credit Hours: 3.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

15 Credits

## Spring 4th Year

- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- Area Selective (Chemistry or Physics) - Credit Hours: 3.00
- Materials Selective - Credit Hours: 3.00
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00

15 Credits

## Critical Course

The ♦ course is considered critical.

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Consultation with an advisor may result in an altered plan customized for an individual student.

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## **Multidisciplinary Engineering/Theatre Engineering Concentration, BSE**

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- ME 27400 - Basic Mechanics II ♦

### **Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I
- **Fluids**
- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦
- **Engineering Materials**
- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or
- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦
- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I
- **Engineering Economics**
- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦
- **Capstone Senior Design**
- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦  
OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Theatre Engineering Concentration (32 credits)

**Area Selectives** - Credit Hours: 15.00

- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 36800 - Theatre Production II - Credit Hours: 3.00
- THTR 55000 - Advanced Scenery Technology - must be taken two times
- THTR 59700 - Production And Design Seminar
- Engineering Design Selective - Credit Hours: 3.00
- Engineering Electives - Credit Hours: 14.00

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

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

- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

### GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### Course Requirements and Notes

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200-2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200-1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### Pass/No Pass Policy

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### Transfer Credit Policy

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or

- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Multidisciplinary Engineering Plan of Study

Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics & Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

17-19 Credits

Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MA 26200 - Linear Algebra And Differential Equations
- THTR 36800 - Theatre Production II - Credit Hours: 2.00
- THTR 55000 - Advanced Scenery Technology
- **Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics

16 Credits

Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory



- THTR 55000 - Advanced Scenery Technology
- Engineering Elective - Credit Hours: 3.00
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis or
- THTR 25400 - Drafting For Theatre or
- THTR 55400 - Advanced Theatre Drafting
- **Fluids**
- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena
- **Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials

## 15-17 Credits

### Spring 3rd Year

- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- THTR 36800 - Theatre Production II - Credit Hours: 1.00
- THTR 59700 - Production And Design Seminar - meets Gen Ed Non-Introductory
- Engineering Elective - Credit Hours: 3.00
- Engineering Design Selective - Credit Hours: 3.00
- THTR 20100 - Theatre Appreciation - meets Gen Ed Humanities

## 16 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology  
**Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- IE 34300 - Engineering Economics
- Engineering Elective - Credit Hours: 3.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00

## 15-17 Credits

## Spring 4th Year

### Senior Capstone II

- IDE 48500 - Multidisciplinary Engineering Design Project or
- THTR 59700 - Production And Design Seminar
- Engineering Elective - Credit Hours: 3.00
- General Education Elective I (BSS-Human Cultures:Behavior/Social Sci) - Credit Hours: 3.00
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00

12 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Multidisciplinary Engineering/Visual Design Engineering Concentration, BSE

### 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

Multidisciplinary Engineering Major Change (CODO) Requirements

## Degree Requirements

# 120 Credits Required

## Multidisciplinary Engineering Major Requirements (28 credits)

- 18 credits should be 30000+ level engineering courses (Concentration courses can be used to meet requirement)
  - 6 credits (of the 18 total) should be 40000+ level (Concentration courses can be used to meet requirement)
- A maximum of 24 credits allowed in any one engineering discipline

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering ♦
- IDE 48700 - Multidisciplinary Engineering Senior Professional Development ♦
- **Thermodynamics**
- ABE 20100 - Thermodynamics In Biological Systems I ♦ or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems ♦ or
- CE 21101 - Thermal And Energy Sciences ♦ or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics ♦ or
- ME 20000 - Thermodynamics I ♦ or
- MSE 26000 - Thermodynamics Of Materials ♦
- **Statics and Dynamics**
- AAE 20300 - Aeromechanics I ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- ME 27400 - Basic Mechanics II ♦  
OR
- ME 27000 - Basic Mechanics I ♦ and
- CE 29800 - Basic Mechanics II Dynamics ♦  
OR
- CE 29700 - Basic Mechanics I (Statics) ♦ and
- ME 27400 - Basic Mechanics II ♦

### **Linear Circuits**

- ECE 20001 - Electrical Engineering Fundamentals I

### **Fluids**

- AAE 33300 - Fluid Mechanics ♦ or
- CE 34000 - Hydraulics ♦ or
- CHE 37700 - Momentum Transfer ♦ or
- ME 30800 - Fluid Mechanics ♦ or
- MSE 34000 - Transport Phenomena ♦

### **Engineering Materials**

- AAE 20400 - Aeromechanics II ♦ or
- ME 32300 - Mechanics Of Materials ♦ or

- MSE 23000 - Structure And Properties Of Materials ♦ or
- NUCL 27300 - Mechanics Of Materials ♦
- **Statistics**
- IDE 36000 - Multidisciplinary Engineering Statistics ♦ or
- IE 33000 - Probability And Statistics In Engineering II ♦ or
- IE 23000 - Probability And Statistics In Engineering I
- **Engineering Economics**
- IE 34300 - Engineering Economics ♦ or
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making ♦
- **Capstone Senior Design**
- EPCS 41200 - Senior Design Participation In EPICS ♦ (must take 2 times for total of 4.00 credits)
- OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- IDE 48500 - Multidisciplinary Engineering Design Project ♦
- OR
- IDE 48400 - Multidisciplinary Engineering Design Methodology ♦ and
- THTR 59700 - Production And Design Seminar ♦ (only available to Acoustical and Theatre concentrations)

## Visual Design Engineering Concentration (32 credits)

### Engineering Design Selective (3 credits)

### Engineering Electives (14 credits)

### Area Selectives (20 credits)

- 15 credits will come from Area Selectives.
- 3 credits of AD (from a Gen Ed or Gen Ed 30000+)
- 2 credits of CM/MFET will come from the CAD requirement.

### Art & Design (AD) - Credit Hours: 3.00-12.00

- AD 10000-59999

### Computer Graphics Technology (CGT) or Manufacturing Engineering Tech (MFET) or Construction Management (CM) or - Credit Hours: 3.00-12.00

- CGT 10000-59999
- MFET 10000-59999
- CM 10000-59999

## Other Departmental/Program Course Requirements (60 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (13-14 credits)

- Sophomore Science Selective - Credit Hours: 3.00-4.00
- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations
- CM 16400 - Graphics For Civil Engineering And Construction ♦ or
- MFET 16300 - Graphical Communication And Spatial Analysis ♦ or
- THTR 55400 - Advanced Theatre Drafting ♦ or
- THTR 25400 - Drafting For Theatre ♦

## General Education Requirement (18 credits)

*Must have C- or better in all General Education Electives.*

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (30000+level or non-intro)
- General Education V - Credit Hours: 3.00 (30000+level or non-intro)
- General Education VI - Credit Hours: 3.00-5.00 (General Education Elective)

## Multidisciplinary Engineering Information

### Supplemental List

Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Grade Requirements

- A student must earn a grade of C- or higher in both courses in the capstone engineering sequence (IDE 48400 + IDE 48500 or IDE 48400 + THTR 59700 or EPCS 41200 + EPCS 41200)
- A student must earn a grade of C- or higher in the 24 credits of general education electives that are required.

#### **GPA Requirements**

- 2.0 Graduation GPA required for Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- 2.0 Engineering GPA required in the 45 credits of 20000+ level engineering classes counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### **Course Requirements and Notes**

- A student may not advance to the capstone engineering course (IDE 48500 or THTR 59700 or EPCS 41200-2<sup>nd</sup> time) if they have not earned a C- or better in the capstone prep course (IDE 48400 or EPCS 41200-1<sup>st</sup> time))
- A maximum of 24 credits from any one Professional Engineering School (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 6 credits of ROTC courses (AFT, NS, MIL) may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.
- No more than 3 credits of engineering research may be counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major.

#### **Pass/No Pass Policy**

- No courses counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, may be taken for a P/NP grade

#### **Transfer Credit Policy**

- Any Professional Engineering School courses that are transferred to Purdue (AAE, ABE, BME, CE, CHE, ECE, EEE, ENE, ENGR, EPCS, IDE, IE, ME, MSE, NUCL) and are counted towards the Bachelor of Science in Engineering (BSE) degree, Multidisciplinary Engineering major, must come from an ABET accredited program

## **University Requirements**

### **University Core Requirements**

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### **Civics Literacy Proficiency Requirement**

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or

- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Sample Multidisciplinary Engineering Plan of Study/Visual Design Engineering Concentration

Fall 2nd Year

- IDE 30100 - Professional Preparation In Interdisciplinary Engineering
- MA 26100 - Multivariate Calculus
- CM 16400 - Graphics For Civil Engineering And Construction or
- MFET 16300 - Graphical Communication And Spatial Analysis
- **Thermodynamics**
- ME 20000 - Thermodynamics I or
- ABE 20100 - Thermodynamics In Biological Systems I or
- ABE 21000 - Thermodynamics Principles Of Engineering And Biological Systems or
- CHE 21100 - Introductory Chemical Engineering Thermodynamics or
- MSE 26000 - Thermodynamics Of Materials
- **Statics and Dynamics I**
- ME 27000 - Basic Mechanics I or
- AAE 20300 - Aeromechanics I or
- CE 29700 - Basic Mechanics I (Statics)
- **Sophomore Science Selective**
- PHYS 24100 - Electricity And Optics or
- PHYS 27200 - Electric And Magnetic Interactions

16-18 Credits

Spring 2nd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- MA 26200 - Linear Algebra And Differential Equations
- Area Elective (CGT or MFET or CM) - Credit Hours: 3.00
- **Statics & Dynamics II** (*If AAE 20300 is taken in Fall 2nd, an Engineering Elective should be taken here*)
- ME 27400 - Basic Mechanics II or
- CE 29800 - Basic Mechanics II Dynamics

14 Credits

Fall 3rd Year

- CE 34300 - Elementary Hydraulics Laboratory
- **Fluids**



- CE 34000 - Hydraulics or
- AAE 33300 - Fluid Mechanics or
- CHE 37700 - Momentum Transfer or
- MSE 34000 - Transport Phenomena  
**Engineering Materials**
- AAE 20400 - Aeromechanics II or
- ME 32300 - Mechanics Of Materials or
- MSE 23000 - Structure And Properties Of Materials or
- NUCL 27300 - Mechanics Of Materials
- Area Elective (AD) - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education II (HUM-Human Cultures: Humanities) - Credit Hours: 3.00

## 16-17 Credits

### Spring 3rd Year

#### **Statistics**

- IDE 36000 - Multidisciplinary Engineering Statistics or
- IE 23000 - Probability And Statistics In Engineering I or
- IE 33000 - Probability And Statistics In Engineering II
- Area Elective (CGT or AD) - Credit Hours: 3.00
- Engineering Design Selective - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective I (BSS-Human Cultures:Behavior/Social Sci) - Credit Hours: 3.00

## 15 Credits

### Fall 4th Year

- IDE 48700 - Multidisciplinary Engineering Senior Professional Development  
**Senior Capstone I**
- IDE 48400 - Multidisciplinary Engineering Design Methodology  
**Engineering Economics**
- IDE 48300 - Multidisciplinary Engineering Analysis And Decision Making or
- IE 34300 - Engineering Economics
- Area Elective (CGT or MFET or CM or AD) - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective III (STS - Science, Technology & Society) - Credit Hours: 3.00
- General Education Elective IV (30000+ level/Non-Introductory) - Credit Hours: 3.00

## 15 Credits

### Spring 4th Year

#### **Senior Capstone II**

- IDE 48500 - Multidisciplinary Engineering Design Project
- Area Elective (CGT or MFET or CM or AD) - Credit Hours: 3.00
- Engineering Elective - Credit Hours: 3.00
- General Education Elective V (30000+ level/Non-Introductory) - Credit Hours: 3.00
- General Education Elective VI - 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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)

### Design Selective (3 credits)

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

### Engineering Selective (9 credits)

- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 26400 - Advanced C Programming
- ECE 27000 - Introduction To Digital System Design
- ECE 30100 - Signals And Systems

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

## Engineering Electives (3 credits)

Cannot use other professional schools seminar courses (ABE 29000, BME 29000, CE 29202, CEM 28000, CEM 28000, EEE 29000, ME 29000)

- AAE 20000 - 59999
- ABE 20000 - 59999
- BME 20000 - 59999
- CE 20000 - 59999
- CEM 20000 - 59999
- CHE 20000 - 59999
- ECE 20000 - 59999
- ENE 20000 - 59999
- ENGR 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## 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 - Theatre 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

## 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.

## Vibrational Option (30 credits)

### Design Selective (3 credits)

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

### Engineering Selective (3 credits)

- ME 51300 - Engineering Acoustics
- ME 41300 - Noise Control
- ECE 40020 - Sound Reinforcement System Design
- CE 31100 - Architectural Engineering

### Engineering Electives (9 credits)

\* Cannot use other professional schools seminar courses (ABE 29000; BME 29000; CE 29202; CEM 28000; EEE 29000; ME 29000)

- AAE 20000 - 59999
- ABE 20000 - 59999
- BME 20000 - 59999
- CE 20000 - 59999
- CEM 20000 - 59999
- CHE 20000 - 59999
- ECE 20000 - 59999
- ENE 20000 - 59999
- ENGR 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 59999
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

### 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 - Theatre 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

### 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.

## **Educational Engineering Concentration for Multidisciplinary Engineering**

### Educational Engineering (33 credits)

#### Design Course

- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 25500 - Introduction To Electronic Analysis And Design
- EPCS 30000-40000 (3 credits total)
- ECE 27000 - Introduction To Digital System Design
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

### ENE Engineering Selective (3 credits)

- ENE 49800 - Undergraduate Research In Engineering Education
- ENE 50200 - History And Philosophy Of Engineering Education
- ENE 59000 - Special Problems In Engineering Education
- IDE 38500 - Design Methodologies For Diverse Stakeholders

## Independent Study (3 credits)

- ENE 49800 - Undergraduate Research In Engineering Education
- ENE 50200 - History And Philosophy Of Engineering Education
- ENE 59000 - Special Problems In Engineering Education
- IDE 38500 - Design Methodologies For Diverse Stakeholders

## Engineering Electives (6 credits)

Cannot use other professional schools seminar courses (ABE 29000, BME 29000, CE 29202, CEM 28000, EEE 29000, ME 29000).

- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## Educational Methods Selective (3 credits)

- 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 Secondary Mathematics - Methods I
- EDCI 42600 - Teaching Of Secondary Mathematics - Methods II
- EDCI 42800 - Teaching Science In The Middle And Junior High School

## Education Selectives (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
- HDFS 21000 - Introduction To Human Development

## Area Electives (6 credits)

See MDE Area Elective Courses

# Engineering Management Concentration in Multidisciplinary Engineering

## Engineering Management Concentration (30 credits)

### Design Elective (3 credits)

- 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 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

### Engineering Electives (12 credits)

Cannot use other professional schools seminar courses (ABE 29000, bme 29000, CE 29202, CEM 28000, EEE 29000, ME 29000).

- AAE 20000 - 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 29600 - Experimental Courses

- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## 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, ENTR, or TLI {other than ENTR 20000 or 31000}) (15 Credits)

## Engineering Science Studies Concentration for Interdisciplinary Engineering

### Engineering Courses (20 credits)

\*Cannot use seminar courses from other professional schools (ABE 29000, BME 29000, CE 29202, CEM 28000, EEE 29000, ME 29000).

- AAE 20000+
- ABE 20000+
- BME 20000+
- CE 20000+
- CEM 20000+
- CHE 20000+
- ECE 20000+
- EEE 20000+
- ENE 20000+
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000-40200
- IDE 20000+
- IE 20000+
- ME 20000+
- MSE20000+
- NUCL 20000+

### Area Courses (30 Credits)



Courses used to accomplish student's educational objective. These courses can be used to complete minors. They can be engineering or non-engineering courses. See Interdisciplinary Engineering Studies Supplemental Information for list of courses.

## CAD Selective (2-3 credits)

- MFET 16300 - Graphical Communication And Spatial Analysis ♦
- THTR 25400 - Drafting For Theatre ♦
- THTR 54500 - Directional Process In Production

## General Engineering Concentration for Multidisciplinary Engineering

### Engineering Design Course

- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 27000 - Introduction To Digital System Design
- EPCS 30000 - 40200 (3.00 credits total)
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel
- ME 44400 - Computer-Aided Design And Prototyping

### Beginning Engineering Course

Can be an engineering course that does not have another engineering course as a pre-requisite OR can be an engineering course that is the pre-requisite to a FOLLOW-UP ENGINEERING COURSE.

- AAE 33400 - Aerodynamics
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- ABE 33000 - Design Of Machine Components
- CE 20300 - Principles And Practice Of Geomatics
- CE 22200 - Life Cycle Engineering And Management Of Constructed Facilities
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- CE 31100 - Architectural Engineering
- CE 35500 - Engineering Environmental Sustainability
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities

- CHE 20500 - Chemical Engineering Calculations
- ECE 26400 - Advanced C Programming
- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- IE 37000 - Manufacturing Processes I
- IE 38600 - Work Analysis And Design I
- ME 36500 - Measurement And Control Systems I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- MSE 23000 - Structure And Properties Of Materials \*if not used as ENGINEERING MATERIALS
- NUCL 20000 - Introduction to Nuclear Engineering

## Follow-up Engineering Course

Can be an engineering course that has an ENGINEERING CORE COURSE as a pre-requisite OR can be an engineering course that has a BEGINNING ENGINEERING COURSE as a pre-requisite.

- AAE 33400 - Aerodynamics
- AAE 33800 - Thermal Sciences
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- BME 30400 - Biomedical Transport Fundamentals
- CHE 37800 - Heat And Mass Transfer
- ECE 20002 - Electrical Engineering Fundamentals II
- ECE 30862 - Object-Oriented Programming In C++ And Java
- ECE 32100 - Electromechanical Motion Devices
- IE 33000 - Probability And Statistics In Engineering II
- IE 37000 - Manufacturing Processes I
- IE 38600 - Work Analysis And Design I
- IE 47000 - Manufacturing Processes II
- IE 48600 - Work Analysis And Design II
- ME 30000 - Thermodynamics II
- ME 31500 - Heat And Mass Transfer
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- MSE 38200 - Mechanical Response Of Materials
- MSE 27000 - Atomistic Materials Science
- NUCL 27300 - Mechanics Of Materials \*if not used as ENGINEERING MATERIALS

## Advanced Engineering Course

- AAE 30000 - 59999
- ABE 30000 - 59999
- BME 30000 - 59999
- CE 30000 - 59999
- CHE 30000 - 59999
- ECE 30000 - 59999
- EEE 30000 - 59999
- ENE 30000 - 59999

- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 30000 - 59999
- IDE 30000 - 59999
- IE 30000 - 59999
- ME 30000 - 59999
- MSE 30000 - 59999
- NUCL 30000 - 59999

## Engineering Elective Course (3 credits)

\* cannot use other professional schools seminar courses

(ABE 29000; BME 29000; CE 29202; CEM 28000; EEE 29000; ME 29000)

- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## Area Selectives

Courses used to accomplish student's educational objective. These courses can be used to complete minors. They can be engineering or non-engineering courses.

### **Can be additional engineering courses:**

- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000-40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

**Can be additional non-engineering courses at any level. Exceptions are notated.**

- AAS
- AD
- AFT
- AGECE
- AGR     only 20000+ level
- AGRY
- AMST
- ANSC
- ANTH
- ARAB
- ASAM
- ASTR
- AT
- BCHM
- BCM
- BIOL
- BMS
- BTNY
- CDIS
- CGT
- CHM     \*no CHM lower than CHM 11600
- CHNS
- CLCS
- CLPH
- CMPL
- CNIT
- COM
- CPB
- CS

- CSR
- DANC
- EAPS
- ECET \*except ECET 22000
- ECON
- EDCI
- EDST
- ENGL
- ENTM
- ENTR
- FNR \*except FNR 19800
- FR
- FS
- FVS
- GER
- GREK
- GSLA
- HDFS
- HEBR
- HHS
- HIST
- HK
- HONR
- HORT
- HSCI
- HTM
- IDIS
- IPPH
- IT
- ITAL
- JPNS
- JWST
- LA \*except LA 10110
- LATN
- LC
- LING
- MA only 30000+ level
- MARS
- MCMP
- MET
- MFET
- MGMT
- MSL
- MUS
- NRES
- NS
- NUPH

- NUR
- NUTR
- OBHR
- OLS
- PHAD
- PHIL
- PHPR
- PHRM
- PHYS
- POL
- PSY
- PTGS
- REL
- RUSS
- SCLA
- SFS
- SLHS
- SOC
- SPAN
- STAT
- SYS
- TECH \*except TECH 10000
- THTR
- TLI
- VCS
- VM \*except VM 10500
- WGSS
- YDAE

## **Humanitarian Engineering Concentration for Multidisciplinary Engineering**

Humanitarian Engineering Concentration (30 credits)

Design Course (3 credits)

- EPCS 30100 - Junior Participation In EPICS
- EPCS 30200 - Junior Participation In EPICS

Global Design Team (3 credits)

- ENGR 50000 - Global Design Team V

Global Engineering (3 credits)

- ENGR 31000 - Engineering In Global Context

## Engineering Selectives (6 credits)

Based on Subtopic: Water or Agriculture or Sanitation or Habit or Energy or Health

- ABE 30500 - Physical Properties Of Biological Materials
- ABE 32500 - Soil And Water Resource Engineering
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability
- CEM 20100 - Life Cycle Engineering And Management Of Constructed Facilities
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- EEE 35500 - Engineering Environmental Sustainability
- ENE 55400 - Globalization And Engineering
- IE 49000 - Special Topics In Industrial Engineering
- IE 59000 - Topics In Industrial Engineering
- ME 41500 - Energy Systems Engineering
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I

## Area Electives (Focused on Humanitarian Interests) (15 credits)

See MDE Area Electives

## Interdisciplinary Engineering Studies Supplemental Information

### Area Electives (30-32 credits depending on concentration)

- Engineering Science Studies Concentration Area Electives - 30 credits required
- Pre-Med Concentration Area Electives - 32 credits required
- 20000-59999 courses in AAE; BME; CE; CEM; CHE; ECE; ENE; IDE; IE; ME; MSE; NUCL
- EPCS 20000-40200
- EPCS 49000 - EPICS Special Topics Course
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges

**Can be additional non-engineering courses:** AAS; AD; AFT; AGECE; AGR 20000-59999; AGRY; AMST; ANSC; ANTH; ARAB; ASAM; ASTR; AT; BCHM; BCM; BIOL; BMS; BTNY; CDIS; CGT; CHM (above CHM 11600); CHNS; CLCS; CLPH; CMPL; CNIT; COM; CPB; CS; CSR; DANC; EAPS; ECET (except ECET 22000); ECON; EDCI; EDST; ENGL; ENTM; ENTR: FNR (except FNR 19800); FR; FS; FVS; GER; GREK; GSLA; HDFS; HEBR; HHS; HIST; HK; HONR; HORT; HSCI; HTM; IDIS; IPPH; IT; ITAL; JPNS; JWST; LA (except LA 10110); LATN; LC; LING; MA (30000-59999); MARS; MCMP; MET; MGMT; MSL; MUS; NRES; NS; NUPH; NUR; NUTR; OBHR; OLS; PHAD; PHIL; PHPR; PHRM; PHYS; POL; PSY; PTGS; REL; RUSS; SCLA; SFS; SLHS; SOC; SPAN; STAT; SYS; TECH (except TECH 10000); THTR; TLI; VCS; VM (except VM 10500); WGSS

Engineering Design Selectives (see Multidisciplinary Engineering list)

General Education Electives (see Multidisciplinary Engineering list)

Sophomore Science Selective (see Multidisciplinary Engineering list)

No Count Courses (see Multidisciplinary Engineering list)

## **Lighting Engineering Concentration in Multidisciplinary Engineering**

Lighting Engineering Concentration (30 credits)

ECE Required Course (3 credits)

- ECE 20002 - Electrical Engineering Fundamentals II ♦

Design Course (3 credits)

- ECE 27000 - Introduction To Digital System Design ♦

Theater Course (2 credits)

- THTR 16200 - Introduction To Light Design And Technology

Area Selectives (13 credits)

- CE 31100 - Architectural Engineering
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 51300 - Lighting In Buildings
- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 36200 - Light Design
- THTR 36800 - Theatre Production II
- THTR 56800 - Advanced Problems In Design

ECE Selective (3 credits)



- ECE 29595 - Selected Topics In Electrical And Computer Engineering
- 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 (6 credits)

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

- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## Multidisciplinary Engineering & Interdisciplinary Engineering Supplemental Information

### Area Electives

- Courses used to accomplish student's educational objective. These courses can be used to complete minors.
- Can be additional Engineering courses (see STEM Selectives)
- Can be additional non-engineering courses at any level. Exceptions are notated.

- AAS
- AD

- AFT only 30000+ level
- AGECE
- AGR only 20000+ level
- AGRY
- AMST
- ANSC
- ANTH
- ARAB
- ASAM
- ASEC
- ASL
- ASTR
- AT
- BCHM
- BIOL
- BMS
- BTNY
- CGT
- CHM \*no CHM lower than CHM 11600
- CHNS
- CLCS
- CLPH
- CMPL
- CNIT
- COM
- CPB
- CS
- CSR
- DANC
- EAPS
- ECET \*except ECET 22000
- ECON
- EDCI
- EDPS
- EDST
- ENGL
- ENGT
- ENTM
- ENTR
- FNR \*except FNR 19800
- FR
- FS
- FVS
- GER
- GREK
- GSLA
- HDFS

- HEBR
- HHS
- HIST
- HK
- HONR
- HORT
- HSCI
- HSOP
- HTM
- IDIS
- IET
- IPPH
- IT
- ITAL
- JPNS
- JWST
- LA \*except LA 10110
- LALS
- LATN
- LC
- LING
- MA only 30000+ level
- MARS
- MCMP
- MET
- MFET
- MGMT
- MSL only 30000+ level
- MUS
- NRES
- NS
- NUPH
- NUR
- NUTR
- OBHR
- OLS
- PHAD
- PHIL
- PHPR
- PHRM
- PHYS
- POL
- PSY
- PTGS
- PUBH
- REL
- RUSS

- SCLA
- SFS
- SLHS
- SOC
- SPAN
- STAT
- SYS
- TECH \*except TECH 10000
- THTR
- TLI
- VCS
- VM \*except VM 10500
- WGSS

## STEM Selectives

- AAE 2000-59999
- ABE 20000-59999
- BCHM 10000-59999
- BIOL 10000-59999
- BME 20000-59999
- CE 20000-59999
- CEM 20000-59999
- CHE 20000-59999
- CHM 10000-59999
- EAPS 10000-59999
- ECE 20000-59999
- EEE 20000-59999
- ENE 20000-59999
- EPCS 20000-40200
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- IDE 20000-59999
- IE 20000-59999
- MA 30000-59999
- ME 20000-59999
- MSE 20000-59999
- NUCL 20000-59999
- PHYS 30000-59999
- SLHS 10000-59999
- STAT 30000-59999

## Engineering Design Selectives

- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- EPCS 30000-40200 (3 credits total)
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control

## Engineering Electives

*Cannot use other professional engineering school's seminar courses: ABE 29000, BME 29000, CE 29202, CEM28000, EEE 29000, ME 29000*

- AAE 20000 - 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 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000:40200
- IDE 20000:59999
- IE 20000:59999
- ME 20000:59999
- MSE 20000:59999
- NUCL 20000:59999

## Lab Requirements for Multidisciplinary Engineering Concentrations

- Engineering Lab - Credit Hours: 2.00 (satisfied by "Engineering Electives" in Concentration Courses)
- Additional Lab - Credit Hours: 1.00 (satisfied by "Engineering Electives - Engineering Lab" or "Area Electives -Non-Engineering" in Concentration Courses)

## Engineering Lab (2 credits)

Can be a separate 1 credit engineering lab course or can be the 1 credit lab portion of a 2, 3, or 4 credit engineering course. Must be two separate courses.

**1-Credit ENGR Lab Courses**

- AAE 20401 - Aeromechanics II Laboratory
- AAE 33301 - Fluid Mechanics Laboratory
- AAE 33401 - Aerodynamics Laboratory
- AAE 35201 - Structural Analysis I Laboratory
- AAE 36401 - Control Systems Laboratory
- BME 20500 - Biomolecular And Cellular Systems Laboratory
- BME 20600 - Biomechanics And Biomaterials Laboratory
- CE 34300 - Elementary Hydraulics Laboratory
- ECE 20007 - Electrical Engineering Fundamentals I Lab
- ECE 20008 - Electrical Engineering Fundamentals II Lab
- ME 30801 - Fluid Mechanics Laboratory
- ME 35401 - Machine Design Laboratory

**2-Credit ENGR Lab Courses (1 credit is a lab)**

- ABE 22600 - Biotechnology Laboratory I
- BME 30600 - Biotransport Laboratory
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I
- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II

**3-Credit ENGR Lab Courses (1 credit is a lab)**

- ABE 20500 - Computations For Engineering Systems
- ABE 30400 - Bioprocess Engineering Laboratory
- ABE 30500 - Physical Properties Of Biological Materials
- BME 30500 - Bioinstrumentation Circuit And Measurement Principles
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- IE 38600 - Work Analysis And Design I
- IE 48600 - Work Analysis And Design II
- IE 47000 - Manufacturing Processes II
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- ME 44400 - Computer-Aided Design And Prototyping
- MSE 23500 - Materials Properties Laboratory
- MSE 33500 - Materials Characterization Laboratory
- MSE 36700 - Materials Processing Laboratory

**4-Credit ENGR Lab Courses (1 credit is a lab)**

- ABE 20100 - Thermodynamics In Biological Systems I
- CE 20300 - Principles And Practice Of Geomatics
- CE 27000 - Introductory Structural Mechanics
- CHE 34800 - Chemical Reaction Engineering
- CHE 37700 - Momentum Transfer
- CHE 37800 - Heat And Mass Transfer
- ECE 27000 - Introduction To Digital System Design
- ECE 36200 - Microprocessor Systems And Interfacing

Additional Lab (1 credit)

Can be an additional 1 credit engineering lab (see above). Or can be a separate 1 credit non-engineering lab course, or the 1 credit lab portion of a 2, 3, or 4 credit non-engineering course

- AD 10500 - Design I
- AD 10600 - Design II
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color Photography
- AD 14600 - Design Drawing I
- AD 23300 - Electronic Media Studio
- AD 23500 - Materials And Processes II
- AD 26200 - Jewelry And Metalwork I
- AGRY 32100 - Genetics Laboratory
- BCHM 30900 - Biochemistry Laboratory
- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 13500 - First Year Biology Laboratory
- BIOL 20300 - Human Anatomy And Physiology
- BIOL 20400 - Human Anatomy And Physiology
- CHM 11600 - General Chemistry
- CHM 25501 - Organic Chemistry For The Life Sciences Laboratory I
- CHM 25601 - Organic Chemistry For The Life Sciences Laboratory II
- CHM 25701 - Organic Chemistry Laboratory
- CHM 26300 - Organic Chemistry Laboratory I
- CHM 26400 - Organic Chemistry Laboratory II
- PHYS 25200 - Electricity And Optics Laboratory
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 34000 - Modern Physics Laboratory
- 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 16300 - Introduction To Sound Design And Technology
- THTR 16400 - Introduction To Theatre Organization And Management
- THTR 25300 - Survey Of Audio Production
- THTR 26300 - Introduction To Sound Studios
- THTR 35300 - Theatre Audio Techniques I
- THTR 36200 - Light Design
- THTR 36300 - Sound Design
- THTR 36800 - Theatre Production II
- THTR 55300 - Theatre Audio Technology II
- THTR 56300 - Advanced Sound Design
- THTR 59700 - Production And Design Seminar

## Sophomore Science Selective (3-4 credits)

Note: cannot be same as FYE Science Selective

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 20300 - Human Anatomy And Physiology
- BIOL 22100 - Introduction To Microbiology
- BIOL 23000 - Biology Of The Living Cell
- BIOL 23100 - Biology III: Cell Structure And Function
- CHM 11600 - General Chemistry
- CHM 25500 - Organic Chemistry For The Life Sciences I
- CHM 25700 - Organic Chemistry
- CHM 26100 - Organic Chemistry I
- CHM 32100 - Analytical Chemistry I
- EAPS 10400 - Oceanography
- EAPS 10500 - The Planets
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 11200 - Earth Through Time
- EAPS 11600 - Earthquakes And Volcanoes
- EAPS 11700 - Introduction To Atmospheric Science
- EAPS 12000 - Introduction To Geography
- EAPS 13800 - Thunderstorms And Tornadoes
- PHYS 24100 - Electricity And Optics
- PHYS 27200 - Electric And Magnetic Interactions

## MDE General Education Electives

### Introductory Courses

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color 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 22800 - Visual Communication Design Computing I
- AD 23300 - Electronic Media Studio
- AD 23600 - Lighting Fundamentals For Photography
- 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 Imaging



- AD 27100 - Dyed Textiles
- AD 27000 - Constructed Textiles
- AD 27500 - Beginning Sculpture
- AGE 22000 - Economics Of Agricultural Markets
- AGE 25000 - Economic Geography Of World Food And Resources
- AMST 20100 - Interpreting America
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- 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 LGBTQ Studies
- ARAB 10100 - Standard Arabic Level I
- ARAB 10200 - Standard Arabic Level II
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- 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 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 23900 - The Comic Vision
- CLCS 28000 - Topics In Classical Civilization
- COM 10200 - Introduction To Communication Theory
- COM 21700 - Science Writing And Presentation
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- DANC 24000 - Dance Composition
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- EDPS 23500 - Learning And Motivation

- ENGL 20300 - Introduction To Research For Professional Writers
- ENGL 22700 - Elements Of Linguistics
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- 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 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
- GER 28000 - German Special Topics
- GREK 10100 - Ancient Greek Level I
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture
- 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 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)
- ITAL 10100 - Italian Level I

- ITAL 10500 - Accelerated Basic Italian
- ITAL 23100 - Dante's Divine Comedy
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- JPNS 10100 - Japanese Level I
- JPNS 28000 - Introduction To Modern Japanese Civilization
- LATN 10100 - Latin Level I
- LING 20100 - Introduction To Linguistics
- MUS 25000 - Music Appreciation
- MUS 27000 - Computer Skills In Music
- NS 21300 - Sea Power And Maritime Affairs
- NS 21400 - Naval Leadership And Management
- PHIL 11000 - The Big Questions: Introduction To Philosophy
- PHIL 11100 - Introduction To Ethics
- MGMT 20000 - Introductory Accounting
- 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
- 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
- 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
- PSY 12000 - Elementary Psychology
- PSY 20000 - Introduction To Cognitive Psychology
- PTGS 10100 - Portuguese Level I
- PTGS 10500 - Accelerated Portuguese

- 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
- RUSS 10100 - Russian Level I
- RUSS 11100 - Conversation Supplement To Russian Level I
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 27500 - Sociology Of Aging And The Life Course
- SPAN 10100 - Spanish Level I
- SPAN 11200 - Elementary Spanish Conversation
- 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 16300 - Introduction To Sound Design And Technology
- THTR 16400 - Introduction To Theatre Organization And Management
- 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 25600 - Stage Make-Up
- THTR 26300 - Introduction To Sound Studios
- THTR 29000 - Special Topics In Theatre
- TLI 11200 - Foundations Of Organizational Leadership
- TLI 15200 - Business Principles For Organizational Leadership
- TLI 21300 - Project Management
- TLI 25500 - Foundations Of Human Resource Development
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies

## Non-Introductory Courses

- AAS 30000-59999
- AD 10600 - Design II
- AD 11400 - Drawing II
- AD 13000 - Interior Design Communication
- 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 22900 - Visual Communication Design Computing II
- AD 23000 - Interior Design I
- AD 23500 - Materials And Processes II
- AD 24000 - Interior Drafting And Drawing
- AD 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 25600 - Presentation Techniques
- AD 28500 - Interior Components And Materials
- AD 30000-59999
- AFT 35100 - Leading People And Effective Communication I
- AFT 36100 - Leading People And Effective Communication II
- AFT 47100 - National Security/Commissioning Preparation I
- AFT 48100 - National Security/Commissioning Preparation II
- AGECE 34000 - International Economic Development
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 41000 - Agricultural Policy
- AGECE 45000 - International Agricultural Trade
- AMST 30100 - Perspectives On America
- AMST 32500 - Sports, Technology, And Innovation
- ANTH 30000-59999
- ARAB 10200 - Standard Arabic Level II
- ARAB 11200 - Elementary Standard Arabic Conversation II
- ARAB 20100 - Standard Arabic Level III
- ARAB 20200 - Standard Arabic Level IV
- ARAB 30000-59999
- 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 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 30000-59999
- CLCS 30000-59999
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Addressing 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 25300 - Introduction To Public Relations
- COM 25600 - Introduction To Advertising
- COM 30000-59999
- CSR 34200 - Personal Finance
- CSR 33100 - Consumer Behavior

- DANC 30000-59999
- ECON 30000-59999
- EDPS 30000 - Student Leadership Development
- EDPS 31500 - Collaborative Leadership: Interpersonal Skills
- EDPS 31600 - Collaborative Leadership: Cross-Cultural Settings
- EDPS 31700 - Collaborative Leadership: Mentoring
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30000-59999
- ENTR 30000-59999
- 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
- FR 30000-59999
- GER 10200 - German Level II
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 21200 - Intermediate German Conversation
- GER 22300 - German Level IV: Science And Engineering
- GER 22400 - German Level IV: Business German
- GER 24100 - Introduction To The Study Of German Literature
- GER 30000-59999
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 30000-59999
- HDFS 30000-59999
- 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
- HORT 30600 - History Of Horticulture
- HEBR 30000-59999
- HIST 30000-59999
- IDIS 30000-59999
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 30000-59999
- 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 30000-59999
- JWST 30000-59999
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 30000-59999
- MGMT 20100 - Management Accounting I
- MGMT 30000-59999
- MSL 30100 - Training Management And The Warfighting Function
- MSL 30200 - Applied Leadership In Small Unit Operations
- MSL 35000 - American Military History And Leadership
- MSL 40100 - The Army Officer
- MSL 40200 - Company Grade Leadership
- MUS 30000-59999
- NS 41300 - Naval Leadership And Ethics
- NUTR 30300 - Essentials Of Nutrition
- OLS 34600 - Critical Thinking And Ethics
- OLS 38600 - Leadership For Organizational Change And Innovation
- PHIL 30000-59999
- POL 30000-59999
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 20100 - Introduction To Statistics In Psychology
- PSY 20300 - Introduction To Research Methods In Psychology
- PSY 22200 - Introduction To Behavioral Neuroscience
- PSY 23500 - Child Psychology
- PSY 24000 - Introduction To Social Psychology
- PSY 24400 - Introduction To Human Sexuality
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 29200 - Topics In Psychology
- PSY 30000-59999
- PTGS 10200 - Portuguese Level II
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30000-59999
- REL 30000-59999
  
- 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 30000-59999
- SOC 30000-59999
- SPAN 10200 - Spanish Level II
- 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
- SPAN 30000-59999
- THTR 30000-59999
- WGSS 30000-59999

## No Count Courses for MDE

The following courses cannot be used for any credit towards degree requirements.

- AFT 10000-29999
- BAND any level
- BME 29000 - Frontiers In Biomedical Engineering
- CE 29202 - Contemporary Issues In Civil Engineering
- CEM 28000 - Construction Engineering Professional Development I
- EEE 29000 - Introduction To Environmental And Ecological Engineering Seminar
- ENGR 10301 - Introduction To Engineering In Practice
- ENGR 18000 - Minorities In Engineering Seminar
- ENGR 19400 - Women In Engineering Seminar
- ENGR 40600 - Engineering Ambassador Leadership Seminar
- GS any level
- MA 15300 - College Algebra
- MA 15800 - Precalculus - Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 25000 - Problem Solving In Probability
- ME 29000 - Global Engineering Professional Seminar
- ME 29700 - Mechanical Engineering Sophomore Projects
- MSL 10000-29999
- PES any level
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PHYS 21700 - Introduction To Current Physics And Forefront Research Honors
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II
- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 29000 - Special Assignments
- PHYS 29500 - Outreach Assistance As Service Learning
- STAT 30100 - Elementary Statistical Methods
- NS 10000-29999



# Nano Engineering Concentration for Multidisciplinary Engineering

## Nano Engineering (30 Credits)

Choose Electrical or Materials Option

### Materials Option: Engineering Courses (15 credits) + Area Courses (15 credits)

- Design elective option must be approved. Some examples are: (3 credits) EPCS 30000+ level, plus the following:

#### Engineering Design Course (3 credits)

- AAE 25100 - Introduction To Aerospace Design
- ABE 33000 - Design Of Machine Components
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- EPCS 30000-40200 (3 credits total)
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

#### Materials Selective Courses (12 credits): Choose 4 courses

- 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

### Electrical Option: Engineering Courses (15 credits) + Area Courses (15 credits)

#### Required Courses

- ECE 20002 - Electrical Engineering Fundamentals II



- ECE 27000 - Introduction To Digital System Design
- ◆
- ECE 31100 - Electric And Magnetic Fields
- ◆
- **Electrical Selectives (6 credits)**
- ECE 30500 - Semiconductor Devices
- ◆
- ECE 39595 - Selected Topics In Electrical And Computer Engineering
- ◆
- ECE 45300 - Fundamentals Of Nanoelectronics
- ◆

## Area Courses (choose Chemistry or Physics sequence) (15 Credits)

### **Chemistry Sequence- Required Courses (8 credits) + Stem Electives (7 credits)**

- CHM 37300 - Physical Chemistry I
- CHM 37301 - Physical Chemistry Laboratory I
- CHM 37400 - Physical Chemistry II
- CHM 37401 - Physical Chemistry Laboratory II
- **Stem Electives (7 credits)**
- AAE 2000-59999
- ABE 20000-59999
- BCHM 10000-59999
- BIOL 10000-59999
- BME 20000-59999
- CE 20000-59999
- CEM 20000-59999
- CHE 20000-59999
- CHM 10000-59999
- EAPS 10000-59999
- ECE 20000-59999
- EEE 20000-59999
- ENE 20000-59999
- ENGR 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- IDE 20000-59999
- IE 20000-59999
- MA 30000-59999
- ME 20000-59999
- MSE 20000-59999
- NUCL 20000-59999
- PHYS 30000-59999
- SLHS 10000-59999
- STAT 30000-59999

### **Physics Sequence- Required Courses (10 credits) + Stem Electives (5 credits)**

- PHYS 31000 - Intermediate Mechanics

- PHYS 34200 - Modern Physics
- PHYS 36000 - Quantum Mechanics
- Stem Electives (5 credits)**
- AAE 2000-59999
- ABE 20000-59999
- BCHM 10000-59999
- BIOL 10000-59999
- BME 20000-59999
- CE 20000-59999
- CEM 20000-59999
- CHE 20000-59999
- CHM 10000-59999
- EAPS 10000-59999
- ECE 20000-59999
- EEE 20000-59999
- ENE 20000-59999
- ENGR - 29600
- ENGR - 30500
- ENGR - 31000
- ENGR - 49001
- IDE 20000-59999
- IE 20000-59999
- MA 30000-59999
- ME 20000-59999
- MSE 20000-59999
- NUCL 20000-59999
- PHYS 30000-59999
- SLHS 10000-59999
- STAT 30000-59999

## **Pre-Medical Engineering Studies Concentration for Interdisciplinary Engineering (52 credits)**

### **Engineering Courses (20 credits)**

\*Cannot use seminar courses from other professional schools (ABE 29000, BME 29000, CE 29202, CEM 28000, EEE 29000, ME 29000)

- AAE 20000+
- ABE 20000+
- BME 20000+
- CE 20000+
- CEM 20000+
- CHE 20000+
- ECE 20000+

- EEE 20000+
- ENE 20000+
- ENGR 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000-40200
- IDE 20000+
- IE 20000+
- ME 20000+
- MSE20000+
- NUCL 20000+

## Area Electives (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

### 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 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 For The Life Sciences I and
- CHM 25600 - Organic Chemistry For The Life Sciences II  
or
- CHM 26100 - Organic Chemistry I and
- CHM 26200 - Organic Chemistry II  
or
- CHM 26505 - Organic Chemistry I and
- CHM 26605 - Organic Chemistry II  
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
- 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

## 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.

# **Pre-Medical Engineering Studies Concentration for Interdisciplinary Engineering Studies (52 credits)**

## **Engineering Courses (20 credits)**

- AAE 20000-59999
- 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 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000-40200
- EPCS 49000 - EPICS Special Topics Course
- IDE 20000-59999
- IE 20000-59999
- ME 20000-59999
- MSE 20000-59999
- NUCL 20000-59999

## **No Count for Engineering Courses**

Engineering Courses - Cannot Use Seminar Courses from other Professional Schools

- ABE 29000 - Sophomore Seminar
- BME 29000 - Frontiers In Biomedical Engineering
- CE 29202 - Contemporary Issues In Civil Engineering
- CEM 28000 - Construction Engineering Professional Development I
- EEE 29000 - Introduction To Environmental And Ecological Engineering Seminar
- ME 29000 - Global Engineering Professional Seminar

## **Area Electives (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
- BME 20500 - Biomolecular And Cellular Systems Laboratory 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

## 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 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 For The Life Sciences I and
- CHM 25600 - Organic Chemistry For The Life Sciences II  
OR
- CHM 26100 - Organic Chemistry I and
- CHM 26200 - Organic Chemistry II  
OR
- CHM 26505 - Organic Chemistry I and
- CHM 26605 - Organic Chemistry II  
OR
- MCMP 20400 - Organic Chemistry I and
- MCMP 20500 - Organic Chemistry II

## Biochemistry

- CHM 33900 - Biochemistry: A Molecular Approach

- or
- BCHM 30700 - Biochemistry
- 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 (and 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) - See advisor

## 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 - Premedical Planning Seminar : 0 credit 10 week class covering how to apply to medical school and other health professions programs

## 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.

## **Theatre Engineering Concentration in Multidisciplinary Engineering**

## Theatre Engineering Concentration (30 credits)

Choose Structural Scenery or Mechanical/Electrical Scenery option

### Design Selective (3 credits)

- 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 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44400 - Computer-Aided Design And Prototyping

### Engineering Electives (12 credits)

- Engineering electives are chosen based on a student's educational objective. Consult with academic advisor. (12 credits)
- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## Mechanical/Electrical Scenery Option (15 credits)

- THTR 36800 - Theatre Production II
- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 55000 - Advanced Scenery Technology (must take THTR 55000 twice)
- THTR 59700 - Production And Design Seminar
- Area Elective (select from MDE Area Electives)

## Structural Scenery Option (15 credits)

- THTR 36800 - Theatre Production II
- THTR 15001 - Introduction To Drafting
- THTR 15002 - Introduction To Scenery Construction Tools And Techniques
- THTR 15003 - Introduction To Rigging For Theatre
- THTR 57001 - Statics And Structures For Theatre I
- THTR 55000 - Advanced Scenery Technology
- THTR 59700 - Production And Design Seminar
- Area Elective (select from MDE Area Electives)

## **Visual Design Engineering Concentration for Multidisciplinary Engineering**

### Visual Design Engineering Concentration (30 credits)

#### Design Elective (3 credits)

- 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
- ABE 43500 - Hydraulic Control Systems For Mobile Equipment
- CE 31100 - Architectural Engineering
- CE 45600 - Wastewater Treatment Processes
- CE 47000 - Structural Steel Design
- ECE 25500 - Introduction To Electronic Analysis And Design
- ECE 27000 - Introduction To Digital System Design
- EPCS 30000-40000 (3 credits total)
- IDE 38500 - Design Methodologies For Diverse Stakeholders
- IE 38600 - Work Analysis And Design I
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 35400 - Machine Design
- ME 41300 - Noise Control
- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel

## Engineering Electives (12 credits)

- Engineering electives are chosen based on a student's educational objectives. Consult with academic advisor. (12 credits)
- AAE 20000 - 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 29600 - Experimental Courses
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 31000 - Engineering In Global Context
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- EPCS 20000 - 40200
- IDE 20000 - 59999
- IE 20000 - 59999
- ME 20000 - 59999
- MSE 20000 - 59999
- NUCL 20000 - 59999

## Area Selectives (15 credits)

- 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.
- CGT 10000-59999
- AD 10000-59999

# Division of Environmental and Ecological Engineering

## About Environmental and Ecological Engineering

Environmental and Ecological Engineering (EEE) offers BS, MS and PhD degrees that train students to approach problems from an integrated perspective, considering both environmental issues and ecological interactions. This high-impact method addresses challenges in the built environment, while also striving to understand interactions between the human and natural worlds.

Of the 14 "Grand Challenges of Engineering" identified by the National Academy of Engineering, six are in the environmental and ecological engineering domain. A degree in Purdue EEE teaches graduates to apply their technical expertise in systems engineering, biology, and chemistry to develop holistic strategies to protect human and environmental health, design sustainable systems and technologies, and manage Earth's limited resources and ecosystems so they will be available for generations to come.

Our program is led by a multidisciplinary community of faculty jointly appointed in EEE and schools/departments including Agricultural and Biological Engineering, Agronomy, Civil Engineering, Forestry and Natural Resources, Industrial Engineering, Materials Engineering, and Mechanical Engineering.

Our curriculum is distinctive in that it focuses on both Classic Environmental Engineering, which develops processes to treat, control, and manage contaminated media, and Industrial Sustainability, which deals with designing and managing engineering systems to avoid waste and preserve natural resources.

Purdue EEE was established in 2006 with this two-pronged philosophy in mind. Our students and faculty address the management of industrial waste within water, soil and air, while also identifying its origins to prevent environmental challenges before they start.

EEE graduates are equipped to enter a wide range of employment sectors in environmental and engineering fields, such as consulting and engineering services, manufacturing, industrial and construction, government, municipal and public service, non-governmental organizations (NGOs), and academia.

## 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](mailto:eee@purdue.edu)

## Graduate Information

[Go to information for this department](#)

## Baccalaureate

## Environmental and Ecological Engineering, BSEEE

### About the Program

The Environmental and Ecological Engineering program is accredited by the Engineering Accreditation Commission of ABET. Our multidisciplinary faculty rigorously prepare students to address the issues that environmental engineers traditionally consider and to proactively prevent environmental problems.

- **Coursework:** Undergraduate coursework in EEE focuses on environmental issues, ecological interactions, the complexity and connectivity between systems, and "designing for the environment." Topics include systems modeling, urban ecology, industrial sustainability, environmental modeling and remediation, and life-cycle analysis, soil and water resource engineering, global and environmental issues, water and

wastewater treatment, hydrology, disaster and emergency relief, habitat restoration, air pollution control and design, and climate action initiatives.

- **Integrated mentorship:** EEE's mentoring program is an integrated partnership that emphasizes one-on-one attention. Each student is assigned an EEE advisor to discuss academic and personal concerns, and paired with a faculty mentor to provide guidance in identifying research interests and pursuing long-term goals.
- **Flexible plans of study:** An advisor and faculty mentor work with each student to craft an individualized plan of study. Students complete extensive elective coursework in addition to the core curriculum, enabling each degree to be tailored strategically to individual interests and career plans.
- **Experiential learning:** Our students participate in a broad range of hands-on learning activities, including cooperative education, undergraduate research, study abroad programs, internships, and service learning.
- **Community:** EEE undergraduates are a close-knit group of students who prioritize peer support over competition. Our program's female enrollment is 50 percent, among the largest percentages of female students in any College of Engineering major.
- **Strong career opportunities:** The job placement rate and starting salary range EEE graduates are commensurate with those for other College of Engineering majors. EEE graduates are equipped to enter a wide range of employment sectors in environmental and engineering fields, such as consulting and engineering services, manufacturing, industrial and construction, government, municipal and public service, non-governmental organizations (NGOs), and academia.

Environmental and Ecological Engineering Major Change (CODO) Requirements

## Mission Statement

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

## Program Educational Objectives

Graduates of the EEE Undergraduate Program will:

- Be prepared to assume immediate employment in the field of environmental & ecological engineering or to continue education in an advanced degree program;
- Participate fully and ethically in the advancement of the profession within five years of graduation, as measured by one or more of the following:
  - Achievement of, or significant progress toward, professional licensure
  - Achievement of, or significant progress toward, an advanced degree
  - Publication of research results and/or field reports
  - Advancement to a leadership role within an engineering organization
  - 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:



- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- 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.
- An ability to communicate effectively with a range of audiences.
- 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.
- 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.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Degree Requirements

# 128 Credits Required

## Departmental/Program Major Courses (52 credits)

### Required Major Courses (25 credits)

- EEE 23000 - Engineering Economics And Environment
- EEE 29001 - Introduction To Environmental & Ecological Engineering Seminar
- EEE 30000 - Environmental And Ecological Systems Modeling
- CE 35000 - Introduction To Environmental And Ecological Engineering ♦ or
- EEE 35000 - Introduction To Environmental And Ecological Engineering ♦
- CE 35500 - Engineering Environmental Sustainability (satisfies Science, Tech & Society for core) or
- EEE 35500 - Engineering Environmental Sustainability (satisfies Science, Tech & Society for core)
- EEE 36000 - Environmental And Ecological Engineering Laboratory - Credit Hours: 3.00
- EEE 38000 - Environmental Chemodynamics
- EEE 39000 - Environmental And Ecological Engineering Professional Practice Seminar
- 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
- EEE 48100 - Reflective Practitioner

### EEE Selectives (21 credits)

*More information about specific requirements: Major Selective Courses, Technical Electives, and No Count List*

- 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 - Category D - Credit Hours: 3.00
- EEE Selective 5 - Credit Hours: 3.00
- EEE Selective 6 - Credit Hours: 3.00
- EEE Selective 7 - Credit Hours: 3.00

## Technical Electives (6 credits)

*More information about specific requirements: Major Selective Courses, Technical Electives, and No Count List*

- Technical Elective 1 - Credit Hours: 3.00
- Technical Elective 2 - Credit Hours: 3.00

## Other Departmental/Program Requirements (75-85 credits)

### First-Year Engineering Requirements (29-39 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.)

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

### Other Course Requirements (28 credits)

- BIOL 28600 - Introduction To Ecology And Evolution
- FNR 58600 - Urban Ecology
- STAT 51100 - Statistical Methods
- MA 26100 - Multivariate Calculus ♦ (C- or better)
- MA 26200 - Linear Algebra And Differential Equations
- ME 27000 - Basic Mechanics I ♦ or
- CE 29700 - Basic Mechanics I (Statics) ♦
- ME 27400 - Basic Mechanics II ♦ or
- CE 29800 - Basic Mechanics II Dynamics ♦
- BIOL 11200 - Fundamentals Of Biology ♦
- CE 34000 - Hydraulics ♦ and
- CE 34300 - Elementary Hydraulics Laboratory

### EEE General Education Requirement (18 credits)

- General Education Selective I - Human Cultures: Humanities - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education Selective II - Human Cultures: Behavioral/Social Sciences - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Sciences for core*)

- General Education Selective III - Intersection of Society and Environment - Credit Hours: 3.00 *(These are generally in environmental law, environmental policy, environmental history, environmental humanities, or environmental education.)*
- General Education Selective IV - Credit Hours: 3.00
- General Education Selective V - Credit Hours: 3.00
- General Education Selective VI - Credit Hours: 3.00

**General Education Requirements must include:**

- **Non-Introductory Courses** - Credit Hours: 6.00
- **College of Liberal Arts, and/or the Honors College** - Credit Hours: 12.00
- **General Education topics dealing with global, societal and contemporary issues** - Credit Hours: 9.00 *(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.)*

Environmental & Ecological Engineering (EEE) General Education Requirements

[Click here to view Subject Codes by College and Department](#)

## Supplemental Lists

- Environmental & Ecological Engineering (EEE) General Education Requirements
- Environmental & Ecological Engineering Major Selective Courses, Technical Electives, and No Count List

## Grade Requirements

*Clearly list any/all grade requirements within the program.*

## GPA Requirements

- 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.

## Course Requirements and Notes

- A maximum of 6 credits total of EPICS, GEP and/or VIP may be counted toward the BSEEE. This does not include courses contributing to FYE Requirement #1 and #2.

## Non-Course/Non-Credit Requirements

Experiential education at Purdue University is a planned pedagogy centering on an authentic experience to strengthen students' knowledge, skills, and abilities, paired with student reflection. Participation in an experiential education opportunity is expected in EEE, and necessary prior to enrolling in EEE 48100: Reflective Practitioner, a required major course in the senior year.

Experiential education may include internships/co-ops, clinical placements and other field-based experiences, projects with community/industry partners, and undergraduate research. Not all experiences are course-based. Some common examples are listed here, but are not limited to:

- EPCS, VIP, GEP - any course level, and any credit level
- EEE 29199, 29299, 39399, 39499, 39599, 38199, 38299, 38399, 39699 - all EEE Coop/Internship courses
- EEE 49800, EEE 59800, EAPS 49900, CE 49900, CHE 41100 - Undergraduate Research/Independent Study courses
- EEE 47200 - real-world, client-based service-learning design experience
- Study Abroad - any course level, any credit level, any time duration

## Pass/No Pass Policy

- No course for the BSEEE may be taken pass/no pass. The Academics Committee will entertain petitions for necessary exceptions, such as circumstances with study abroad or transfer courses.

## Transfer Credit Policy

- A maximum of 10 credits from another university or a regional campus may be used as substitutes for Required Major Courses in EEE. Students may not receive transfer credit for EEE 48000. A maximum of 9 credits from another university or a regional campus may be used as EEE Selective.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Environmental and Ecological Engineering Plan of Study

### Fall 2nd Year

- EEE 23000 - Engineering Economics And Environment
- EEE 29001 - Introduction To Environmental & Ecological Engineering Seminar
- MA 26100 - Multivariate Calculus ♦
- ME 27000 - Basic Mechanics I ♦ or
- CE 29700 - Basic Mechanics I (Statics) ♦
- Technical Selective 1 - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00

## 18 Credits

### Spring 2nd Year

- EEE 38000 - Environmental Chemodynamics
- MA 26200 - Linear Algebra And Differential Equations
- ME 27400 - Basic Mechanics II ♦ or
- CE 29800 - Basic Mechanics II Dynamics ♦
- EEE 35000 - Introduction To Environmental And Ecological Engineering ♦ or
- CE 35000 - Introduction To Environmental And Ecological Engineering ♦
- General Education Selective - Credit Hours: 3.00

## 16 Credits

### Fall 3rd Year

- CE 34000 - Hydraulics ♦
- CE 34300 - Elementary Hydraulics Laboratory ♦
- BIOL 11200 - Fundamentals Of Biology ♦
- EEE 35500 - Engineering Environmental Sustainability or
- CE 35500 - Engineering Environmental Sustainability
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- EEE Selective 1 - Category A - Credit Hours: 3.00
- General Education Selective - 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
- BIOL 28600 - Introduction To Ecology And Evolution
- STAT 51100 - Statistical Methods
- EEE Selective 2 - Category B - Credit Hours: 3.00
- Technical Elective 2 - Credit Hours: 3.00

## 15 Credits

## Fall 4th Year

- FNR 58600 - Urban Ecology
- EEE 48000 - Environmental And Ecological Engineering Senior Design - Credit Hours: 1.00
- EEE 48100 - Reflective Practitioner
- EEE Selective 3 - Category C - Credit Hours: 3.00
- EEE Selective 4 - Category D - Credit Hours: 3.00
- General Education Selective - Intersection of Society and Environment - Credit Hours: 3.00

## 14 Credits

## Spring 4th Year

- EEE Selective 7 - Credit Hours: 3.00
- 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 Selective - Credit Hours: 3.00
- General Education Selective - Credit Hours: 3.00

## 17 Credits

## Pre-Requisite Information

For pre-requisite information, [click here](#).

## 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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. Students should carefully review the co- and/or pre-requisites for the required courses listed.

## Learning Outcomes

- Define the components of Environmental and Ecological Engineering
- Describe key concepts that relate to Environmental Sustainability
- Describe key ecological concepts and how they impact engineered and natural systems
- Develop basic computational skills to process data that inform environmental systems
- Describe the basic inputs and outputs in the life-cycle of a natural or engineered process

## Requirements for the Minor (17-18 Credits)

### Required Courses (11-12 credits)

- EEE 35000 - Introduction To Environmental And Ecological Engineering or
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability
- EEE 23000 - Engineering Economics And Environment or
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- BIOL 28600 - Introduction To Ecology And Evolution or
- FNR 58600 - Urban Ecology or
- BIOL 48300 - Great Issues: Environmental And Conservation Biology or
- BTNY 30200 - Plant Ecology or
- ENTM 31100 - Insect Ecology or
- FNR 20100 - Marine Biology or
- FNR 24150 - Ecology And Systematics Of Fishes, Amphibians And Reptiles or
- FNR 25150 - Ecology And Systematics Of Mammals And Birds

### Selective Courses (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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

# Environmental & Ecological Engineering (EEE) General Education Requirements

## EEE General Education Requirement (18 credits)

- General Education Requirement I - Human Cultures: Humanities - Credit Hours: 3.00 (*satisfies Human Cultures: Humanities for core*)
- General Education Requirement II - Human Cultures: Behavioral/Social Sciences - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Sciences for core*)
- General Education Requirement III - Intersection of Society and Environment - Credit Hours: 3.00 (*These are generally in environmental law, environmental policy, environmental history, environmental humanities, or environmental education.*)
- General Education Requirement IV - Credit Hours: 3.00
- General Education Requirement V - Credit Hours: 3.00
- General Education Requirement VI - Credit Hours: 3.00

### General Education Requirements must include:

- **Non-Introductory Courses** - Credit Hours: 6.00
- **College of Liberal Arts, and/or the Honors College** - Credit Hours: 12.00
- **General Education topics dealing with global, societal and contemporary issues** - Credit Hours: 9.00 (*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.*)

Environmental & Ecological Engineering (EEE) General Education Requirements

[Click here to view Subject Codes by College and Department](#)

## Intersection of Society and the Environment (3 credits)

- AD 39700 - Sustainability In The Built Environment
- AGECE 34000 - International Economic Development
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 52500 - Environmental Policy Analysis
- AGECE 52800 - Global Change And The Challenge Of Sustainably Feeding A Growing Planet
- ANTH 32700 - Environment And Culture
- ENGL 23400 - Literature And The Environment

- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- HIST 39400 - Environmental History Of The United States
- PHIL 29000 - Environmental Ethics
- PHIL 40300 - Moral Psychology And Climate Change
- 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 52000 - Special Topics In Public Policy (Title: Policy Analysis Climate Change)
- POL 52300 - Environmental Politics And Public Policy
- SOC 34400 - Environmental Sociology

## Introductory Level Courses

Courses 10000- and 20000-level without a prerequisite in the same department.

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color Photography
- AD 12500 - Introduction To Interior Design
- AD 13000 - Interior Design Communication
- AD 14600 - Design Drawing I
- AD 20100 - Art For Elementary School Teachers
- AD 20200 - Introduction To Art Education
- AD 22000 - Computers In Art
- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- AD 22800 - Visual Communication Design Computing I
- AD 22900 - Visual Communication Design Computing II
- AD 23000 - Interior Design I
- AD 23300 - Electronic Media Studio
- AD 23400 - Art And Design Internship Preparation
- AD 23500 - Materials And Processes II
- AD 24000 - Interior Drafting And Drawing
- AD 24200 - Ceramics I
- AD 25100 - History Of Photography I
- AD 25500 - Art Appreciation
- AD 25600 - Presentation Techniques
- AD 26500 - Relief Printmaking
- AD 26600 - Silkscreen Printmaking
- AD 26700 - Digital Imaging
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles

- AD 27500 - Beginning Sculpture
- AD 28000 - Human Behavior And Designed Environment
- AD 28500 - Interior Components And Materials
- AGECEC 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECEC 20400 - Introduction To Resource Economics And Environmental Policy
- AGECEC 21700 - Economics
- AGECEC 25000 - Economic Geography Of World Food And Resources
- AMST 10100 - America And The World
- AMST 20100 - Interpreting America
- AMST 21000 - Sport In American Culture
- AMST 25000 - An Introduction To American Protest Movements: What Are They? What Can They Do? How Can We Make One?
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 21200 - Culture, Food And Health
- ANTH 21500 - Introduction To Forensic Anthropology
- ANTH 23000 - Gender Across Cultures
- ANTH 23500 - The Great Apes
- ANTH 25400 - Archaeological Hoaxes, Myths And Frauds
- ANTH 25600 - Archaeology Of Beer
- ANTH 28200 - Introduction To LGBTQ Studies
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 11200 - Elementary Standard Arabic Conversation II
- ARAB 21100 - Elementary Standard Arabic Conversation II
- ARAB 10100 - Standard Arabic Level I
- ARAB 21200 - Elementary Standard Arabic Conversation IV
- ARAB 22400 - Arabic Level IV: Business Arabic
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- 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 22000 - Topics In Classical Literature
- 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 23400 - Medical And Scientific Terminology From Greek And Latin Roots

- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23600 - Ancient World Onscreen
- 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
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 23700 - Our Common Bond: Languages And Cultures In A Global Context
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D
- CMPL 26700 - World Literature: From 1700 A D To The Present
- COM 10000 - Introduction To Communication Studies
- COM 10200 - Introduction To Communication Theory
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Addressing Public Issues
- 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
- COM 25700 - Public Relations Techniques
- COM 26100 - Introduction To Digital Video Production
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 20100 - Modern Dance Technique II
- DANC 20200 - Ballet II
- DANC 20300 - Jazz Dance II
- ECON 21000 - Principles Of Economics
- DANC 24000 - Dance Composition
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 21500 - Inventing Languages
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 21800 - Figures Of Myth And Legends II: Heroes And Villains
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 20200 - Engaging English
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22700 - Elements Of Linguistics
- ENGL 22800 - Language And Social Identity
- ENGL 22900 - Creole Languages And Cultures
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature

- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- FR 10100 - French Level I
- FR 10500 - Accelerated Basic French
- FR 11200 - Elementary French Conversation
- FR 28000 - Second-Year French: Special Topics
- FR 20500 - Accelerated Intermediate French
- FR 21200 - Intermediate French Conversation
- FR 22400 - Professional French I
- FR 23000 - French Literature In Translation
- FR 24100 - Introduction To The Study Of French Literature
- FVS 26100 - Foundations Of Cinema Production
- GER 10100 - German Level I
- GER 10500 - Accelerated Basic German
- GER 11200 - Elementary German Conversation
- GER 20500 - Accelerated Intermediate German
- 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
- GREK 10100 - Ancient Greek Level I
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 10000 - Orientation To Current Issues In Human Development And Family Science
- HDFS 22500 - Human Development Across Cultures
- HDFS 26000 - Young Children With Exceptional Needs
- HDFS 28000 - Diversity In Individual And Family Life
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture
- 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 21100 - The Global Field: World Soccer And Global History
- HIST 22100 - History Behind The Headlines
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23005 - Hitler's Europe
- HIST 24100 - East Asia In The Modern World
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 23800 - History Of Russia From Medieval Times To 1861
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24300 - South Asian History And Civilizations
- HIST 25000 - United States Relations With The Middle East And North Africa
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)
- HIST 27800 - Money, Trade, And Power: The History Of Capitalism
- ITAL 10100 - Italian Level I
- ITAL 10500 - Accelerated Basic Italian
- ITAL 11200 - Elementary Italian Conversation
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- 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
- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 28000 - Introduction To Modern Japanese Civilization
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- KOR 10100 - Korean Level I
- LATN 10100 - Latin Level I
- LATN 10500 - Accelerated Basic 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 23700 - Our Common Bond: Languages And Cultures In A Global Context
- LC 23100 - Fairytale, Folktale, Fable
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 20200 - Special Topics In Foreign Languages IV
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages
- LC 26600 - World Literature: From The Beginnings to 1700 A D
- LC 26700 - World Literature: From 1700 A D To The Present
- LING 20100 - Introduction To Linguistics
- MARS 22000 - Introduction To Medieval And Renaissance Studies
- MUS 25000 - Music Appreciation

- 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 20800 - Ethics Of Data Science
- 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
- 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 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy
- POL 22800 - Data Science And Public 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 23700 - Modern Weapons And International Relations
- POL 23500 - International Relations Among Rich And Poor Nations
- PSY 10000 - Introduction To The Science And Fields Of Psychology
- PSY 12000 - Elementary Psychology
- PTGS 10100 - Portuguese Level I
- PTGS 10500 - Accelerated Portuguese
- PTGS 23500 - Luso-Brazilian Literature In Translation
- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20400 - Introduction To Christian Theology
- REL 20300 - Theology Of Paul
- REL 20200 - Interpretation Of The Old Testament
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West

- REL 25000 - A History Of The Christian Afterlife
- RUSS 10100 - Russian Level I
- RUSS 11100 - Conversation Supplement To Russian Level I
- RUSS 11200 - Conversation Supplement To Russian Level II
- RUSS 21100 - Conversation Supplement To Russian Level III
- RUSS 21200 - Conversation Supplement To Russian Level IV
- RUSS 29800 - Special Topics In Russian
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 22700 - Elements Of Linguistics
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 26700 - Religion In The Modern World
- SOC 27500 - Sociology Of Aging And The Life Course
- SPAN 10100 - Spanish Level I
- SPAN 10500 - Accelerated Basic Spanish
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 21200 - Intermediate Spanish Conversation
- SPAN 22400 - Spanish Level IV: Business Spanish
- SPAN 28000 - Second-Year Spanish: Special Topics
- SPAN 24100 - Introduction To The Study Of Hispanic Literature
- SPAN 23500 - Spanish American Literature In Translation
- SPAN 23100 - Cervantes' Don Quixote
- THTR 13300 - Survey Of Acting
- THTR 20100 - Theatre Appreciation
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction

## Non-Introductory Level Courses (6 credits)

Courses 30000-level and above OR courses with a required pre-requisite in the same department

- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AAS 57500 - Theories Of African American 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 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 26200 - Jewelry And Metalwork I
- AD 30000 - Life Drawing II
- AD 30400 - Video Art
- AD 30500 - Industrial Design I
- AD 30600 - Industrial Design II
- AD 30701 - History Of Contemporary Photography
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31500 - Design Methodology
- AD 31800 - Fundamentals Of Interactive Multimedia Design
- AD 31900 - Web Design For Visual Communication
- AD 32600 - Physical Computing
- AD 33000 - Interior Design III
- AD 33400 - New Media Culture
- AD 33700 - Commercial And Professional Practice In Photography
- AD 33800 - Advanced Interior Design Communication
- AD 33900 - Women Artists In The 20th Century
- AD 34000 - Furniture Development
- AD 34200 - Ceramics II
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34800 - History Of Islamic Art
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36101 - The Constructed Image
- 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 - Alternative Photographic Processes
- AD 38200 - A Global History Of Modern Art
- 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 39600 - Art Museum Practices
- AD 39700 - Sustainability In The Built Environment
- AD 40000 - Advanced Painting
- AD 40400 - Moldmaking And/Or Wheel-Throwing Production Techniques In Ceramics

- AD 40500 - Industrial Design III
- AD 40600 - Industrial Design IV
- AD 41500 - Professional Techniques
- AD 41600 - Seminar On Ideas In Industrial Design II: Design And Creative Problem Solving Methods
- AD 41700 - Variable Topics In Electronic And Time-Based Art
- AD 42100 - Advanced Studies In Photography And Related Media I
- AD 43000 - Interior Design V
- AD 43100 - Visual Communication Design III
- AD 43200 - Visual Communication Design IV
- AD 44000 - Interior Detailing And Construction
- AD 44200 - Ceramics III
- AD 45400 - Modern Architecture
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 47000 - Advanced Studies In Textiles
- AGEC 22000 - Economics Of Agricultural Markets
- AGEC 29600 - Selected Topics In Agricultural Economics
- AGEC 30500 - Agricultural Prices
- 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 Industrial Selling
- AGEC 33300 - Food Distribution - A Retailing Perspective
- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 41100 - Farm Management
- AGEC 42100 - Advanced Commodity Marketing
- 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 Industrial Sales And Marketing
- AGEC 45000 - International Agricultural Trade
- AGEC 45500 - Agricultural Law
- AGEC 45600 - Federal Income Tax Law
- AGEC 52500 - Environmental Policy Analysis
- AGEC 52800 - Global Change And The Challenge Of Sustainably Feeding A Growing Planet
- AMST 30100 - Perspectives On America
- AMST 31000 - Invention, Innovation, And Design
- AMST 32000 - Understanding The National Football League
- AMST 32500 - Sports, Technology, And Innovation
- AMST 33000 - American Car Culture
- 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 32700 - Environment And Culture
- 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 35800 - African Cultures
- 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 38400 - Designing For People: Anthropological Approaches
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ANTH 40400 - Comparative Social Organization
- ANTH 40500 - Ethnographic Methods
- ANTH 41400 - Introduction To Language And Culture
- ANTH 41800 - Field Methods In Cultural Anthropology
- ANTH 42500 - Archaeological Method And Theory
- ANTH 42800 - Field Methods In Archaeology
- ANTH 43600 - Human Evolution
- ANTH 43800 - Field Methods In Biological Anthropology
- ANTH 46000 - Contemporary Issues In Agriculture
- ANTH 48200 - Sexual Diversity In Global Perspectives
- ANTH 50400 - Archaeological Theory
- ANTH 50500 - Culture And Society
- ANTH 50600 - The Development Of Modern Anthropology
- ANTH 50700 - History Of Theory In Anthropology
- ANTH 51400 - Anthropological Linguistics
- ANTH 51900 - Introduction To Semiotics
- ANTH 53400 - Human Osteology
- ANTH 53500 - Foundations Of Biological Anthropology
- ANTH 53600 - Primate Ecology
- ANTH 56300 - Historical Linguistics
- ANTH 56500 - Sociolinguistics
- ANTH 57500 - Economic Anthropology
- ANTH 58900 - Archaeology And Materials Science
- 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
- ARAB 33400 - North African Literature And Culture
- ARAB 58700 - Modern Arab Thought
- ASAM 34000 - Contemporary Issues In Asian American Studies
- ASAM 34200 - Special Topics In Asian American Studies
- ASL 10200 American Sign Language II
- ASL 20100 American Sign Language III
- ASL 20200 American Sign Language IV
- ASL 30100 - American Sign Language V
- ASL 30200 - American Sign Language Advanced-Level VI
- ASL 36100 - The Structure Of American Sign Language I: Phonology And Morphology
- ASL 36200 - The Structure Of American Sign Language II: Syntax, Semantics And Language Use
- ASL 36400 - Introduction To Structure Of American Sign Language
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- 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 40100 - Chinese Level VII
- CHNS 40200 - Chinese Level VIII
- CHNS 49000 - Special Topics In Chinese Language
- CHNS 49300 - Special Topics In Chinese Literature
- CLCS 33700 - The Ancient Epic
- CLCS 38000 - Alexander The Great And Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38400 - Ancient Western Medicine
- 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 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- CLCS 49900 - Special Topics In Classics
- CLCS 59000 - Directed Reading In Classics
- COM 30300 - Intercultural Communication
- COM 30301 - Mentored Intercultural Communication Experience
- COM 30400 - Quantitative Methods For Communication Research
- 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 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 33600 - Advertising Media Strategy
- COM 33701 - Producing Digital Advertising
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- COM 35300 - Problems In Public Relations
- COM 35600 - Problems In Advertising
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37500 - Conflict And Negotiation
- COM 37600 - Communication And Gender
- COM 37800 - Introduction To Health Communication
- COM 38100 - Gender And Feminist Studies In Communication
- COM 40700 - Introduction To New Media/Social Media Production
- 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 41900 - Judgment And Decision Making
- COM 42300 - Leadership, Communication And Organizations
- COM 42700 - Careers, Communication Issues And Strategies
- COM 43500 - Communication And Emerging Technologies
- COM 44400 - Introduction To Communication And Social Entrepreneurship
- COM 44700 - The Television Documentary
- COM 44900 - Media Management
- COM 45300 - Reporting Of Science News
- COM 45600 - Advertising Writing
- COM 46400 - American Political Communication
- COM 47800 - Health Communication Campaigns
- COM 49501 - Sports Media Relations
- COM 49502 - Travel Writing
- COM 49503 - Public Relations For Social Change
- COM 49504 - Social Media For Social Good
- COM 49505 - Sports Communication
- COM 50700 - Introduction To Semiotics
- COM 50800 - Nonverbal Communication In Human Interaction
- COM 51200 - Theories Of Interpersonal Communication
- COM 51800 - Theories Of Persuasion
- COM 52000 - Small Group Communication
- COM 52700 - Introduction To Cultural Studies In Communication
- COM 55800 - Historical Trends In Mass Communication Research
- COM 55900 - Current Trends In Mass Communication Research
- COM 56500 - Sociolinguistics

- COM 57400 - Organizational Communication
- COM 57600 - Health Communication
- DANC 30100 - Modern Dance Techniques III
- DANC 34500 - Choreography
- DANC 34600 - Intermediate Choreography
- ECON 30100 - Managerial Economics
- ECON 31200 - Energy Economics: Competition, Regulatory, And Environmental Policy
- ECON 32200 - Economics Of Public Policy
- ECON 32500 - Economics Of Sports
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36100 - Antitrust And Regulation
- ECON 36200 - Health Economics
- ECON 36500 - History Of Economic Thought
- ECON 36700 - Law And Economics
- ECON 37000 - International Trade
- ECON 37600 - Economics Of The European Union
- ECON 38000 - Money And Banking
- ECON 38500 - Labor Economics
- ECON 42200 - Public Finance And Taxation
- ECON 45500 - Historical Development Of Modern Economics
- ECON 45600 - Urban Economics
- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30100 - Ways Of Reading
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Digital Design And Production
- ENGL 31600 - Craft Of Fiction From A Writer's Perspective
- ENGL 31700 - Craft Of Poetry From A Writer's Perspective
- ENGL 32200 - Word, Image, Media
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 32900 - English Language III: Sound And Form
- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33200 - Games And User Experience (UX)
- ENGL 34100 - Topics In Science, Literature, And Culture
- ENGL 34200 - Legal Fictions
- ENGL 34300 - Labor And Literature
- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- ENGL 34500 - Games And World Building
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865

- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian 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 36700 - Mystery And Detective Fiction
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37401 - Studies In British Literary History
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37800 - Studies In American Literary History
- ENGL 37900 - The Short Story
- ENGL 38000 - Issues In Rhetoric And Public Life
- 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 39200 - Young Adult Literature
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ENGL 39900 - Beyond English
- 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 42201 - Writing For The Health And Human Sciences
- ENGL 42400 - Writing For High Technology Industries
- ENGL 43201 - Editing And Publishing
- ENGL 43300 - Writing Proposals And Grants
- ENGL 43400 - Science And Medical Writing
- ENGL 43900 - Topics In Disability Studies
- ENGL 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- 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 47000 - Advanced Topics In Rhetorical Studies
- ENGL 49200 - Literature In The Secondary Schools
- ENGL 50100 - Introduction To English Studies
- ENGL 50600 - Introduction To English And General Linguistics
- ENGL 50700 - Advanced Poetry Writing

- ENGL 50900 - Advanced Fiction Writing
- ENGL 51000 - History Of The English Language
- ENGL 51100 - Semantics
- ENGL 51200 - English Syntax And Syntactic Theory
- ENGL 51300 - English Phonology
- ENGL 51500 - Advanced Professional Writing
- ENGL 52800 - Medieval English Literature
- ENGL 53100 - The Rise Of The Novel
- ENGL 53200 - The English Novel In The Nineteenth Century
- ENGL 53400 - Seventeenth-Century Literature
- ENGL 53500 - Restoration And Early Eighteenth-Century Literature
- ENGL 53800 - English Drama From The Restoration To The Modern Period
- ENGL 54100 - Studies In Chaucer's Canterbury Tales
- ENGL 54300 - Shakespeare In Critical Perspective
- ENGL 54400 - Milton
- ENGL 54700 - British Romanticism
- ENGL 54800 - Victorian Literature
- ENGL 55200 - Studies In Major American Authors
- ENGL 55300 - Colonial And Early American Literature
- ENGL 55400 - American Literary Culture 1820-1860
- ENGL 55700 - Nineteenth-Century African-American Narrative
- ENGL 55800 - American Literature In The Later Nineteenth Century
- ENGL 56000 - Modern American Poetry
- ENGL 56100 - Modern British Poetry
- ENGL 56300 - Historical Linguistics
- ENGL 56500 - Sociolinguistics
- ENGL 56900 - Contemporary Criticism And Theory
- ENGL 57000 - Introduction To Semiotics
- ENGL 57300 - Tragedy
- ENGL 57800 - Early Twentieth-Century American Fiction
- ENGL 57900 - Modern British Fiction
- ENGL 58000 - Theories Of Modernity And Postmodernity
- ENGL 58300 - U S Ethnic/Multicultural Literature
- ENGL 58500 - Creative Nonfiction Writing
- ENGL 58900 - Directed Writing
- ENGL 59000 - Directed Reading
- ENGL 59100 - Introduction To Composition Theory
- ENGL 59200 - Postcolonial Studies
- ENGL 59300 - Contemporary British Fiction
- ENGL 59400 - Contemporary Poetry
- ENGL 59500 - Contemporary American Fiction
- ENGL 59600 - Advanced Studies In Literature Or Language
- ENGL 59700 - Contemporary Black Feminist Literature
- ENGL 59900 - Academic Language And Content Area Learning
- 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 31200 - Advanced French Conversation
- FR 32400 - Professional 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 39600 - Special Topics In French Language Science
- FR 39900 - Special Study Abroad Credit In French
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 42400 - Professional French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FR 49100 - Special Topics In French
- FR 51900 - Teaching College French
- FR 52700 - Etudes de Style
- FR 54100 - Renaissance French Literature
- FR 54900 - French Literature And Film
- FR 55800 - French Novel Of The Twentieth Century
- FR 56100 - The Structure Of French I: Phonetics And Phonology
- FR 56200 - The Structure Of French II: Syntax And Morphosyntax
- FR 56300 - History Of The French Language
- FR 56400 - Introduction To Old French
- FR 58100 - French Culture
- FR 58200 - Francophone Cultures
- GER 10200 - German Level II
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 22300 - German Level IV: Science And Engineering
- GER 22400 - German Level IV: Business German
- 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 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 39900 - Special Study Abroad Credit In German
- GER 40100 - German Level VII
- GER 40200 - German Level VIII
- GER 42400 - Business German
- GER 48000 - German Civilization
- GER 49800 - Advanced Topics In German
- GER 51900 - Teaching College German
- GER 52400 - German For International Trade
- GER 54200 - German Classicism

- GER 54300 - The Age Of Enlightenment And The Storm And Stress Movement
- GER 54400 - German Romanticism
- GER 54500 - German Prose From Naturalism To The Present
- GER 54600 - German Literature Since 1945
- GER 55100 - Lyric Poetry From Romanticism To The Present
- GER 55400 - German Drama Before Naturalism
- GER 55500 - German Drama From Naturalism To The Present
- GER 56100 - The Structure Of German I: Phonology And Derivational Morphology
- GER 56200 - The Structure Of German II: Inflectional Morphology And Syntax
- GER 56300 - History Of The German Language
- GER 57500 - Theories Of German Language Acquisition
- GER 58100 - German Culture
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 34300 - Greek Oratory
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 35400 - Greek Comedy
- GREK 44600 - Greek Historians
- HDFS 30500 - Biosocial Foundations Of The Family
- HDFS 31000 - Guidance In Early Childhood
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 31300 - Adolescent Development
- HDFS 31400 - Atypical Child 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 39800 - International Special Topics
- HDFS 40500 - Language, Literacy, And Social Studies In Preschool And Primary Grades
- 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
- HEBR 38300 - Kabbalah And Jewish Mysticism: Secret Knowledge In Judaism
- HEBR 38500 - The Holocaust In Modern Hebrew Literature
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30105 - Big History: Time And Scale
- HIST 30200 - Historical Topics
- HIST 30305 - Food In Modern America
- HIST 30400 - America In The 1960s

- HIST 30505 - The United States In The World 1898-Present
- HIST 30605 - Technology And War In U.S. History
- HIST 30805 - History Of Life Sciences
- HIST 30905 - History Of Environmental Science
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877
- HIST 31205 - The Arab-Israeli Conflict
- HIST 31305 - Medical Devices And Innovation
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31505 - American Beauty
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31905 - Christianity In The Global Age
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32501 - Twentieth Century Europe Through Autobiography
- HIST 32900 - History Of Women In Modern Europe
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 33505 - Nationalism And Socialism In East Central Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33805 - History Of Human Rights
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34505 - Arabs In American Eyes
- HIST 34705 - History Of Religion In America
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 35305 - Sports In America
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35900 - Gender In East Asian History
- HIST 36305 - The History Of Medicine And Public Health
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37005 - Queens And Empresses In Early Modern Europe
- 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 38105 - American Indians And Film
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History

- HIST 38400 - History Of Aviation
- HIST 38505 - Media, Politics And Popular Culture
- HIST 38605 - Land Of The Indians: Native Americans In Indiana
- HIST 38700 - History Of The Space Age
- HIST 39400 - Environmental History Of The United States
- HIST 39800 - African American History Since 1877
- HIST 40000 - Great Books And The Search For Meaning
- HIST 40300 - Europe In The Reformation
- 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 41005 - History Of The American Presidency
- HIST 41300 - Modern European Imperialism: Repression And Resistance
- HIST 41505 - Gender And Politics In Early Modern Europe
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 45000 - The English Landscape: Integrating History, Horticulture & Landscape Architect
- 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 47005 - Women And Health In America
- HIST 47300 - History Of The South
- HIST 47600 - The Civil War In Myth And Memory
- HIST 47700 - Native American Women's History
- HIST 48005 - Madness And The Asylum In The United States
- HIST 48500 - Topics In American Political History
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49400 - Science And Society In American Civilization
- HIST 57600 - Problems In Latin American History
- HIST 57700 - Contemporary Latin America
- HIST 59000 - Directed Reading In History
- HIST 59500 - The Holocaust And Genocide
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- 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
- 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 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 36300 - Relationship Of Japanese Language And Society
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48500 - Culinary Culture Of Japan
- JPNS 49000 - Special Topics In Japanese Language
- JWST 33000 - Introduction To Jewish Studies
- KOR 10200 - Korean Level II
- KOR 20100 - Korean Level III
- KOR 20200 - Korean Level IV
- KOR 30100 - Korean Level V
- KOR 30200 - Korean Level VI
- KOR 40100 - Korean Level VII
- LALS 30100 - Latin American Literary And Cultural Studies
- LALS 30300 - Latin American Languages And Linguistics
- LALS 34700 - Latin American Politics
- LALS 35500 - Political Economy Of Latin America
- LALS 40100 - Special Topics In Latin American/Latino Studies
- 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
- LC 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 33800 - Language Through Films
- LC 36100 - Sound And Form In Language
- LC 36800 - Sociolinguistic Study Of African American English
- LC 37100 - Phonetics Of Foreign Languages
- LING 31100 - Fundamentals Of Phonology And Morphology
- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- LING 36800 - Sociolinguistic Study Of African American English
- MUS 34200 - Music Composition II

- 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 31000 - Classical Chinese Philosophy
- PHIL 32200 - Philosophy Of Technology
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40300 - Moral Psychology And Climate Change
- 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 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- 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
- PHIL 50700 - Recent American Philosophy
- PHIL 51000 - Phenomenology
- PHIL 51400 - Twentieth-Century Analytical Philosophy I
- PHIL 51500 - Twentieth-Century Analytical Philosophy II
- PHIL 52000 - Existentialism
- PHIL 52400 - Contemporary Ethical Theory
- PHIL 52500 - Studies In Metaphysics
- PHIL 53000 - Deconstructionist And Postmodernist Philosophy
- PHIL 53200 - Studies In Theory Of Knowledge
- PHIL 53500 - Studies In Philosophy Of Mind
- PHIL 54000 - Studies In Social And Political Philosophy
- PHIL 54500 - Recent Analytic Philosophy
- PHIL 55100 - Philosophy Of The Natural Sciences
- PHIL 55200 - Philosophy Of The Social Sciences
- PHIL 55500 - Critical Theory
- PHIL 56100 - Reading Philosophy: Skills And Strategies
- PHIL 56200 - Reading To Argue
- PHIL 56400 - Walk-Along Language Lab
- PHIL 57100 - Writing To Learn
- PHIL 57200 - Writing To Argue
- 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 33500 - China And The Challenges Of Globalization
- 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 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- 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 42500 - Environmental Law And Politics
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43500 - International Law
- POL 43801 - International Human Rights
- POL 43900 - United States Foreign Policy Making
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- POL 49100 - Political Science Senior Seminar
- POL 49300 - Interdisciplinary Undergraduate Seminar
- POL 50100 - Political Science: Methodology
- POL 52000 - Special Topics In Public Policy
- POL 52300 - Environmental Politics And Public Policy
- POL 52400 - Public Policy And The Family
- POL 53100 - Terrorism And WMD Threat Assessment
- POL 53200 - Nuclear Strategy And Proliferation
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 20300 - Introduction To Research Methods In Psychology
- PSY 22200 - Introduction To Behavioral Neuroscience
- PSY 23099 - Cooperative Education Seminar I
- 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

- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32400 - Introduction Cognitive Neuroscience
- PSY 32700 - Psychology Of Helping
- 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 35200 - Introduction To Neuropsychology
- PSY 35400 - Close Relationships
- PSY 36700 - Adult Development And Aging
- PSY 37600 - Attention And Cognitive Control
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 39800 - Independent Research In Psychology
- PSY 40100 - Language And The Brain
- PSY 40300 - Psycholinguistics
- PSY 41800 - Understanding Autism
- 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 43200 - Social Psychology In Film
- PSY 43400 - Neurobiology Of Disease
- PSY 43600 - Foods And Behavior
- PSY 43800 - Introduction To Clinical Psychology
- PSY 44300 - Aggression And Violence
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PSY 49200 - Internship In Psychology
- PSY 50600 - Professional Issues And Trends In Social Psychology
- PSY 50700 - Current Readings In Social Psychology
- PSY 51100 - Psychophysics
- PSY 51200 - Neural Systems
- PSY 51300 - Introduction To Computational Cognitive Neuroscience
- PSY 51400 - Introduction To Mathematical Psychology
- PSY 51500 - Neuroscience Of Consciousness
- PSY 52200 - An Introduction To Pediatric Psychology
- PSY 58100 - Neuroethics
- 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
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics
- REL 45100 - Christology
- REL 45200 - Systematic Theology
- 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 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 38000 - Russian Culture And Civilization I
- RUSS 38100 - Russian Culture And Civilization II
- RUSS 39900 - Special Study Abroad Credit In Russian
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 42400 - Business Russian
- RUSS 49700 - Topics In Russian Literature
- RUSS 49800 - Topics In Russian Culture
- RUSS 56100 - The Structure Of Russian I: Phonology And Syntax
- RUSS 56200 - The Structure Of Russian II: Morphology
- SLHS 30100 - Introduction To Cognitive Neuroscience
- SLHS 30200 - Hearing Science
- SLHS 30300 - Anatomy And Physiology Of The Speech Mechanism
- SLHS 30600 - Introduction To Phonetics
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 40300 - Psycholinguistics
- SLHS 41800 - Understanding Autism
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SLHS 42000 - Introduction To Developmental Speech And Language Disorders
- SLHS 43000 - Speech-Language Disorders In Health Care Settings
- SLHS 44400 - Introduction To Research In Communication Sciences And Disorders
- SLHS 44900 - Introduction To Clinical Practice In Communication Disorders
- SLHS 46000 - Assessment Audiology And Aural Rehabilitation Across The Lifespan
- SOC 31000 - Race And Ethnicity
- 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 33500 - Political Sociology
- SOC 33800 - Global Social Movements

- SOC 33900 - Sociology Of Global Development
- SOC 34000 - General Social Psychology
- SOC 34400 - Environmental Sociology
- SOC 35000 - Sociology Of Family
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 36900 - Religion And Chinese Society
- SOC 37400 - Medical Sociology
- SOC 37700 - Sociology Of Mental Health
- SOC 40200 - Sociological Theory
- SOC 40900 - Social Networks
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 43200 - Work In Contemporary America
- SOC 45000 - Gender Roles In Modern Society
- SOC 51400 - Racial And Cultural Minorities
- SOC 52500 - Social Movements
- SOC 53100 - Community Organization
- SOC 57000 - Sociology Of Education
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare
- SOC 57600 - Health And Aging In Social Context
- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 20500 - Accelerated Intermediate Spanish
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 30500 - Spanish For Heritage Speakers
- SPAN 30801 - Advanced Spanish For Heritage Speakers
- SPAN 31200 - Advanced Spanish Conversation
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 32500 - Spanish For Engineering And Technology
- 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 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 48500 - Food And Culture In The Hispanic World
- SPAN 49800 - Advanced Topics In Spanish
- SPAN 51900 - Teaching College Spanish
- SPAN 54000 - Spanish Literature Of The Middle Ages
- SPAN 54100 - Spanish Literature Of The Golden Age
- SPAN 54200 - Cervantes Don Quijote
- SPAN 54300 - Spanish Literature Of The 18th And 19th Centuries
- SPAN 54500 - Spanish Literature Of The 20th Century
- SPAN 54900 - Hispanic Women Writers
- SPAN 55000 - Spanish American Literature Of The Colonial Period
- SPAN 55100 - Spanish American Literature Of The 19th Century
- SPAN 55200 - Spanish American Literature From 1900 To 1970
- SPAN 55300 - Spanish American Literature From 1970 - Present
- SPAN 55400 - Hispanic Caribbean Literature
- SPAN 55500 - Latino/a Literature
- SPAN 55600 - Mexican Literature
- SPAN 55700 - Argentine Literature
- SPAN 56100 - The Structure Of Spanish I: Phonetics, Phonology, And Dialectology
- SPAN 56200 - The Structure Of Spanish II: Morphology, Lexicology, And Syntax
- SPAN 56300 - History Of The Spanish Language
- SPAN 56401 - Spanish Sociolinguistics
- THTR 32300 - Acting: Movement For The Actor
- THTR 33300 - Acting II: Scene Study
- THTR 33400 - Acting III: Acting For The Camera
- THTR 38000 - History Of Theatre I
- THTR 38100 - History Of Theatre II
- THTR 43300 - Acting IV: Acting Shakespeare
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- WGSS 38000 - Comparative Studies In Gender And Culture
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women, Work, And Labor
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality
- WGSS 48300 - Feminisms In Global Perspective
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies
- 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

# **Environmental & Ecological Engineering Major Selective Courses, Technical Electives, and No Count List**

## **Major Selective Courses, Technical Electives, and No Count List**

### **EEE Major Selectives (21 credits)**

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 seven courses, comprising at least 21 credits, are required.
2. At least twelve (12) of the 21 credits must be in the College of Engineering at the 20000-level or above. Of these twelve credits, 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. At least one course (or three credits) must be classified as "EEE Engineering Fundamentals" course (Category D).
7. 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.
8. Students are allowed and encouraged to choose more than twelve credits from the Universally Approved (ABCD categories) list.

### **EEE Selectives (21 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 - Category D - Credit Hours: 3.00
- EEE Selective 5 - Credit Hours: 3.00
- EEE Selective 6 - Credit Hours: 3.00
- EEE Selective 7 - Credit Hours: 3.00

### **College of Engineering (20000-level or above)**

- ABE 32500 - Soil And Water Resource Engineering

- ABE 42500 - Water Quality Engineering
- ABE 42600 - Ecological Restoration Engineering
- CE 31100 - Architectural Engineering
- CE 38300 - Geotechnical Engineering I
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 44000 - Urban Hydraulics
- CE 44200 - Introduction To Hydrology
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects (Title - Water Treatment)
- CE 51200 - Urban Planning And Analysis
- CE 51501 - Building Energy Audits
- CE 54300 - Coastal Engineering
- CE 54900 - Computational Watershed Hydrology
- CE 55700 - Air Quality Management
- CE 59700 - Civil Engineering Projects (Titles: Disasters & Emergencies, Environ Analytical Chemistry, Environmental Fluid Mechanics, Geographic Information Systems; Plastics In Infrstrctre&Enviro, Sustainable Building Design Construction & Operations; Water Chemistry Environmental Ecological Engineering)
- EEE 36000 - Environmental And Ecological Engineering Laboratory (*First 3 credits are required as core; additional titled credits may be used for selective*)
- EEE 38500 - Environmental Soil Chemistry
- EEE 45600 - Wastewater Treatment Processes
- EEE 47200 - Community-Engaged Engineering & Design
- EEE 49500 - Experimental Course (Titles: Sustainability Across Sectors)
- 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 54400 - Environmental Organic Chemistry
- EEE 55000 - Physico-Chemical Processes In Environmental Engineering I
- EEE 55201 - Environmental Biotechnology
- EEE 56000 - Environmental And Ecological Engineering In-Context (Any title - Students must confirm they have appropriate requisite knowledge with instructor or EEE office)
- EEE 57000 - Solid And Hazardous Waste Management
- EEE 59500 - Environmental And Ecological Engineering Projects (Title: Any title - Students must confirm they have the appropriate requisite knowledge with the instructor or EEE office)
- IE 34300 - Engineering Economics
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I (Title - Solar Energy Technology)
- MSE 59700 - Selected Topics In Materials Engineering (Title - Lean Manufacturing)

#### College of Engineering (40000-level or above)

- ABE 42500 - Water Quality Engineering
- ABE 42600 - Ecological Restoration Engineering
- CE 41300 - Building Envelope Design And Thermal Loads

- CE 41400 - Building Mechanical And Electrical System Design
- CE 44000 - Urban Hydraulics
- CE 44200 - Introduction To Hydrology
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects (Title: Water Treatment)
- CE 51200 - Urban Planning And Analysis
- CE 51501 - Building Energy Audits
- CE 54300 - Coastal Engineering
- CE 54900 - Computational Watershed Hydrology
- CE 55700 - Air Quality Management
- CE 59700 - Civil Engineering Projects (Title: Disasters & Emergencies, Environ Analytical Chemistry, Environmental Fluid Mechanics, Geographic Information Systems; Plastics In Infrstrectre&Enviro, Sustainable Building Design Construction & Operations; Water Chemistry Environmental Ecological Engineering)
- EEE 45600 - Wastewater Treatment Processes
- EEE 47200 - Community-Engaged Engineering & Design
- EEE 49500 - Experimental Course (Titles: Sustainability Across Sectors)
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- EEE 54400 - Environmental Organic Chemistry
- EEE 55000 - Physico-Chemical Processes In Environmental Engineering I
- EEE 55201 - Environmental Biotechnology
- EEE 56000 - Environmental And Ecological Engineering In-Context (Any title - Students must confirm they have appropriate requisite knowledge with instructor or EEE office)
- EEE 57000 - Solid And Hazardous Waste Management
- EEE 59500 - Environmental And Ecological Engineering Projects (Any title - Students must confirm they have appropriate requisite knowledge with instructor or EEE office)
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I (Title: Solar Energy Technology)
- MSE 59700 - Selected Topics In Materials Engineering (Title: Lean Manufacturing)

### Category A - Earth Science (3 credits minimum)

- AGRY 25500 - Soil Science
- AGRY 33500 - Weather And Climate
- AGRY 33700 - Environmental Hydrology
- CE 44200 - Introduction To Hydrology
- EAPS 22500 - Science Of The Atmosphere
- 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 (Title: Water Treatment)
- CE 54300 - Coastal Engineering

- EEE 45600 - Wastewater Treatment Processes
- EEE 47200 - Community-Engaged Engineering & Design
- EEE 57000 - Solid And Hazardous Waste Management

### Category C - 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 44300 - Introductory Environmental Fluid Mechanics
- CE 55700 - Air Quality Management
- CE 59700 - Civil Engineering Projects (Titles: Geographic Information Systems or Water Chemistry Environmental Ecological Engineering)
- EEE 38500 - Environmental Soil Chemistry
- EEE 59500 - Environmental And Ecological Engineering Projects (Titles: Water Chemistry Environmental Ecological Engineering)
- FNR 21000 - Natural Resource Information Management
- IE 34300 - Engineering Economics

### Category D - Engineering Fundamentals (3 credits minimum)

- EEE 53000 - Life Cycle Assessment: Principles And Applications
- EEE 55000 - Physico-Chemical Processes In Environmental Engineering I

### Additional EEE Selectives (0 - 9 credits)

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

- AGRY 45000 - Soil Conservation and Water Management
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- CM 51000 - Topics In Environmentally Sustainable Construction, Design And Development
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EDCI 50600 - Environmental Education
- 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 44500 - Urban Forest Issues
- FNR 54300 - Conservation Biology I
- 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.)
- MET 42200 - Power Plants And Energy Conversion
- VIP 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.)

### Technical Electives (6 credit minimum required)

Technical Electives are broadly defined as any course in a technical field, typically from the Colleges of Engineering, Agriculture, Science, Polytechnic Institute, or Krannert School of Management. AGECE from Agriculture and ECON from Management are excluded as these count as General Education Electives.

**[Click here to view Subject Codes by College and Department.](#)**

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 and seminars are not allowed.)

- AGRY 12500 - Environmental Science And Conservation
- ASM 23600 - Environmental Systems Management
- CM 16400 - Graphics For Civil Engineering And Construction
- EAPS 32700 - Climate, Science And Society
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- 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 49001 - Breakthrough Thinking For Complex Challenges
- 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
- ENTR 31500 - Business Planning For Social Entrepreneurship
- FNR 12500 - Environmental Science And Conservation
- FNR 20100 - Marine Biology
- ME 49200 - Technology And Values
- MET 52700 - Technology From A Global Perspective
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- NRES 12500 - Environmental Science And Conservation
- NRES 38010 - Hazardous Waste Handling
- TLI 11200 - Foundations Of Organizational Leadership
- TLI 15200 - Business Principles For Organizational Leadership

## No Count Courses

The following courses may not be used to meet degree requirements. Please speak with EEE advisor as this is a static list that may have adjustments made as courses are reviewed.

- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 11100 - General Chemistry



- CHM 11200 - General Chemistry (Combination of CHM 11100 and CHM 11200 may substitute for CHM 11500)
- CHM 20000 - Fundamentals Of Chemistry
- 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 15555 - Quantitative Reasoning
- MA 15800 - Precalculus - Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 19000 - Topics In Mathematics For Undergraduates
- MA 25000 - Problem Solving In Probability
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PHYS 21700 - Introduction To Current Physics And Forefront Research Honors
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II
- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PSY 20100 - Introduction To Statistics In Psychology
- SOC 38200 - Introduction To Statistics In Sociology
- STAT 11300 - Statistics And Society
- STAT 22500 - Introduction To Probability Models
- STAT 25000 - Problems Solving In Probability
- STAT 30100 - Elementary Statistical Methods
- STAT 31100 - Introductory Probability

## Optional Approved Courses for Degree Requirements

### **Biology**

- BIOL 11200 - Fundamentals Of Biology or
- BIOL 11000 - Fundamentals Of Biology I

### **Mathematics**

- MA 26200 - Linear Algebra And Differential Equations  
OR
- MA 26500 - Linear Algebra and
- MA 26600 - Ordinary Differential Equations  
OR
- MA 35100 - Elementary Linear Algebra and
- MA 26600

## **Environmental and Ecological Engineering Minor Selectives**

Selective Courses (6 credits minimum)

- ABE 32500 - Soil And Water Resource Engineering
- ABE 42500 - Water Quality Engineering
- ABE 42600 - Ecological Restoration Engineering
- ABE 52700 - Computer Models In Environmental And Natural Resources Engineering
- 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
- BIOL 48300 - Great Issues: Environmental And Conservation Biology \*
- BIOL 54900 - Microbial Ecology
- CE 31100 - Architectural Engineering
- CE 38300 - Geotechnical Engineering I
- CE 41300 - Building Envelope Design And Thermal Loads
- CE 41400 - Building Mechanical And Electrical System Design
- CE 44000 - Urban Hydraulics
- CE 44200 - Introduction To Hydrology
- CE 44300 - Introductory Environmental Fluid Mechanics
- CE 45600 - Wastewater Treatment Processes
- CE 45700 - Air Pollution Control And Design
- CE 49700 - Civil Engineering Projects - Title: Water Treatment
- CE 51200 - Urban Planning And Analysis
- CE 51501 - Building Energy Audits
- CE 54000 - Open Channel Hydraulics
- 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 - Titles: Disasters & Emergencies; Environ Analytical Chemistry; Geographic Information Systems; Plastics&nbsp;In Infrstrctre & Enviro; Polymers In Infrastructure & Environment; Sustainable Building Design Construction & Operations; Water Chemistry Environmental Ecological Engineering
- CHE 59700 - Special Topics In Chemical Engineering - Title: Advanced Solar Conversion
- CM 51000 - Topics In Environmentally Sustainable Construction, Design And Development
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 58300 - Geology Of Landfills
- EAPS 58400 - Hydrogeology
- EDCI 50600 - Environmental Education
- EEE 30000 - Environmental And Ecological Systems Modeling
- EEE 36000 - Environmental And Ecological Engineering Laboratory

- EEE 38500 - Environmental Soil Chemistry
- EEE 45600 - Wastewater Treatment Processes
- EEE 49800 - Environmental And Ecological Engineering Projects - (Indiv. Research proposal required; 3 credits maximum may be applied toward minor)
- EEE 53000 - Life Cycle Assessment: Principles And Applications \*
- EEE 54400 - Environmental Organic Chemistry
- EEE 55000 - Physico-Chemical Processes In Environmental Engineering I
- EEE 55201 - Environmental Biotechnology
- EEE 59500 - Environmental And Ecological Engineering Projects
- FNR 35700 - Fundamental Remote Sensing
- FNR 54300 - Conservation Biology I
- FNR 55800 - Remote Sensing Analysis And Applications
- FNR 58600 - Urban Ecology \*
- ME 41300 - Noise Control
- ME 43000 - Power Engineering
- ME 51400 - Fundamentals Of Wind Energy
- ME 59700 - Advanced Mechanical Engineering Projects I - Title: Solar Energy Technology; Sustainable Electronics
- MET 42200 - Power Plants And Energy Conversion
- MSE 59700 - Selected Topics In Materials Engineering - Title: Lean Manufacturing; Sustainable Electronics
- NRES 38500 - Environmental Soil Chemistry
- NRES 45000 - Soil Conservation And Water Management
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 47000 - Fuel Cell Engineering

## Notes

- 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.

# 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

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West Lafayette, IN 47907-2023  
Phone: +1 (765) 494-5400  
Fax: +1 (765) 494-6802

## Graduate Information

For Graduate Information please see Industrial Engineering Graduate Program Information.

## Baccalaureate

## Industrial Engineering, BSIE

### About the Program

**Industrial 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.

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The undergraduate program in industrial engineering is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Industrial Engineering Major Change (CODO) Requirements

## 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 Selectives and Electives (15 credits)

### IE Selectives (6 credits)

**Option I:**

- 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

- IE Selective - Credit Hours: 3.00 (see list in supplemental information)

## Technical Electives (9 credits)

- Technical Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

## Other Departmental/Program Requirements (72-85 credits)

*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.*

## First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Course Requirements (25-28 credits)

- CS 15900 - C Programming (may be taken in FYE)
- MA 26100 - Multivariate Calculus (Recommended C- or better for pre-requisite)
- 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
- ECE 20001 - Electrical Engineering Fundamentals I

## IE General Education Requirement (18 credits)

- General Education Elective I - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education Elective III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education Elective IV - Credit Hours: 0.00-3.00 (satisfies Information Literacy for core, if needed)
- General Education Elective V - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00-5.00

*General Education Electives - Credits Hours: 6.00 (should be satisfied in First-Year Engineering for Written Communication & Oral Communication)*

*At least 6 credits must be Non-Introductory*

## Supplemental List

Click here for Industrial Engineering Supplemental Information

## GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Engineering degree.

## Pass/No Pass Policy

- All courses must be taken for a grade (No Pass/No Pass courses will count)

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement #7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits



# Sample Industrial Engineering Plan of Study

## 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

- IE 33000 - Probability And Statistics In Engineering II
- MA 26500 - Linear Algebra
- ME 20000 - Thermodynamics I
- NUCL 27300 - Mechanics Of Materials
- PHYS 24100 - Electricity And Optics
- General Elective II - Credit Hours: 3.00

18 Credits

## Fall 3rd Year

- CS 15900 - C Programming (if not taken in FYE)
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- MA 26600 - Ordinary Differential Equations
- General Elective III - Credit Hours: 3.00

15 Credits

## Spring 3rd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- IE 33200 - Computing In Industrial Engineering
- IE 37000 - Manufacturing Processes I
- IE 38300 - Integrated Production Systems I
- IE 38600 - Work Analysis And Design I
- General Elective IV - Credit Hours: 3.00

18 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
- Technical Elective III - Credit Hours: 3.00
- General Elective VI - Credit Hours: 3.00
- Required IE Technical Requirement I (3 credits)
- IE 47000 - Manufacturing Processes II or
- IE 48400 - Integrated Production Systems II
- **Required IE Technical Requirement II** (3 credits)
  - IE 47000 or IE 48400 (whichever was not take in Requirement 1) or IE Selective (see list)

## 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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 Polytechnic Institute.

## Requirements for the Minor (18 credits)

### Core Courses (9 credits)

- MFET 34400 - Automated Manufacturing Processes (only offered in Fall semesters)
- 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

#### 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 - Introduction To Robot Kinematics
- MFET 37400 - Manufacturing Integration I

#### Advanced Manufacturing

- ME 50700 - Laser Processing
- MET 49000 - Special Topics In MET

#### Computer-Aided Design in Manufacturing

- ME 44400 - Computer-Aided Design And Prototyping
- IE 47200 - Imagine, Model, Make

#### 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

### Industrial Engineering General Electives

#### General Education Program Information

##### 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. At least 24 total credit hours are required.
  3. At least 12 credit hours must be taken from the College of Liberal Arts, the Daniels School of Business, 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\*:
    1. College of Health and Human Sciences
    2. College of Liberal Arts
    3. Daniels School of Business
    4. Entrepreneurship
    5. Department of Agricultural Economics
    6. 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)
- Agricultural&nbsp;Sciences Education & Communication (ASEC)
- Daniels School of Business:
  - 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)
  - Chinese (CHNS)
  - 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

#### **4.2) 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 GRADUATIO

## Introductory Courses

### Prefixes A-D

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color Photography
- AD 12500 - Introduction To Interior Design
- AD 13000 - Interior Design Communication
- AD 14600 - Design Drawing I
- AD 20000 - Beginning Painting
- AD 20100 - Art For Elementary School Teachers
- AD 20200 - Introduction To Art Education
- 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 23400 - Art And Design Internship Preparation
- AD 24000 - Interior Drafting And Drawing
- AD 24200 - Ceramics I
- 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 Imaging
- AD 27000 - Constructed Textiles

- AD 27100 - Dyed Textiles
- AD 27500 - Beginning Sculpture
- AD 28000 - Human Behavior And Designed Environment
- AD 28500 - Interior Components And Materials
- AGECE 20300 - Introductory Microeconomics For Food And Agribusiness
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
- AGECE 21700 - Economics
- AGECE 22000 - Economics Of Agricultural Markets
- AGECE 25000 - Economic Geography Of World Food And Resources
- AGECE 29600 - Selected Topics In Agricultural Economics
- AMST 10100 - America And The World
- AMST 20100 - Interpreting America
- AMST 21000 - Sport In American Culture
- AMST 25000 - An Introduction To American Protest Movements: What Are They? What Can They Do? How Can We Make One?
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 21200 - Culture, Food And Health
- ANTH 21500 - Introduction To Forensic Anthropology
- ANTH 23000 - Gender Across Cultures
- ANTH 23500 - The Great Apes
- ANTH 25400 - Archaeological Hoaxes, Myths And Frauds
- ANTH 25600 - Archaeology Of Beer
- ANTH 28200 - Introduction To LGBTQ Studies
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASAM 24000 - Introduction To Asian American Studies
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- 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
- CLCS 18100 - Classical World Civilizations
- CLCS 22000 - Topics In Classical Literature
- 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 23400 - Medical And Scientific Terminology From Greek And Latin Roots



- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23600 - Ancient World Onscreen
- 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
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
- CMPL 23700 - Our Common Bond: Languages And Cultures In A Global Context
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D
- CMPL 26700 - World Literature: From 1700 A D To The Present
- COM 10000 - Introduction To Communication Studies
- COM 10200 - Introduction To Communication Theory
- COM 11400 - Fundamentals Of Speech Communication
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Addressing Public Issues
- 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
- COM 25700 - Public Relations Techniques
- COM 26100 - Introduction To Digital Video Production
- CSR 20900 - Introduction To Retail Management
- CSR 21500 - Textile Industry
- CSR 22000 - Apparel Design I
- CSR 22100 - Apparel Design II
- CSR 28200 - Customer Relations Management
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- AAS 37600 - The Black Male
- DANC 24000 - Dance Composition

## Prefixes E-J

- ECON 21000 - Principles Of Economics
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 20200 - Engaging English

- ENGL 21500 - Inventing Languages
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22700 - Elements Of Linguistics
- ENGL 22800 - Language And Social Identity
- ENGL 22900 - Creole Languages And Cultures
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books
- ENGL 25700 - Literature Of Black America
- 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- ENTR 20000 - Introduction To Entrepreneurship And Innovation
- FR 10100 - French Level I
- FR 10500 - Accelerated Basic French
- FR 11200 - Elementary French Conversation
- FR 20500 - Accelerated Intermediate French
- FR 23000 - French Literature In Translation
- FR 24100 - Introduction To The Study Of French Literature
- FVS 26100 - Foundations Of Cinema Production
- GER 10100 - German Level I
- GER 10500 - Accelerated Basic German
- GER 11200 - Elementary German Conversation
- GER 23000 - German Literature In Translation
- GER 24100 - Introduction To The Study Of German Literature
- GREK 10100 - Ancient Greek Level I
- HDFS 10000 - Orientation To Current Issues In Human Development And Family Science
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HDFS 22500 - Human Development Across Cultures
- HDFS 26000 - Young Children With Exceptional Needs
- HDFS 28000 - Diversity In Individual And Family Life

- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture
- 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 21100 - The Global Field: World Soccer And Global History
- HIST 22100 - History Behind The Headlines
- HIST 22800 - English History To 1688
- HIST 22900 - English History Since 1688
- HIST 23005 - Hitler's Europe
- 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 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 27800 - Money, Trade, And Power: The History Of Capitalism
- HONR 19901 - Honors First Yr Experience I
- HONR 19902 - The Evolution Of Ideas II
- HONR 19903 - Interdisciplinary Approaches In Writing
- HTM 10010 - Introduction To The Hospitality And Tourism Industry
- HTM 10100 - Hospitality And Tourism Student Seminar
- HTM 14100 - Financial Accounting For The Service Industries
- HTM 16200 - Introduction To Event And Meeting Planning Industry
- HTM 17300 - Introduction To Tourism Management
- HTM 18100 - Introduction To Lodging Management
- HTM 19100 - Sanitation And Health In Foodservice, Lodging, And Tourism
- HTM 20200 - Hospitality And Tourism Work Experience
- HTM 21200 - Management And Leadership In Hospitality And Tourism
- HTM 23100 - Hospitality And Tourism Marketing
- HTM 24100 - Managerial Accounting And Financial Management In Hospitality Operations
- HTM 25500 - Advanced Spreadsheet Techniques For Hospitality And Tourism Management
- HTM 26200 - Festivals And Special Events
- HTM 29101 - Quantity Food Production And Service Laboratory
- HTM 29102 - Introduction To Foodservice Management
- ITAL 10100 - Italian Level I
- ITAL 10500 - Accelerated Basic Italian
- ITAL 11200 - Elementary Italian Conversation
- ITAL 20500 - Accelerated Intermediate Italian
- 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
- JPNS 10100 - Japanese Level I
- JPNS 23000 - Japanese Literature In Translation
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization

## Prefixes K-P

- LALS 25000 - Introduction To Latin American And Latino Studies
- LALS 26000 - U S Latino Culture
- LATN 10100 - Latin Level I
- LATN 10500 - Accelerated Basic Latin
- LC 10100 - Special Topics In Foreign Languages I
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 23100 - Fairytale, Folktale, Fable
- LC 23500 - East Asian Literature In Translation
- LC 23700 - Our Common Bond: Languages And Cultures In A Global Context
- LC 23900 - Women Writers In Translation
- LC 26100 - Introduction To The Linguistic Study Of Foreign Languages
- LC 26600 - World Literature: From The Beginnings to 1700 A D
- LC 26700 - World Literature: From 1700 A D To The Present
- LING 20100 - Introduction To Linguistics
- MARS 22000 - Introduction To Medieval And Renaissance Studies
- MGMT 11000 - Introduction To Management And Information Strategies
- MGMT 17500 - Information Strategies For Management
- MGMT 20000 - Introductory Accounting
- MGMT 21200 - Business Accounting
- MGMT 22000 - Making The Business Case
- MGMT 24200 - Contemporary Problems In Personal Finance For Minorities
- MGMT 24300 - Contemporary Thought Of Minorities In Management
- MGMT 25400 - Legal Foundations Of Business I
- MGMT 28500 - Knowledge Management
- MGMT 29400 - Navigating Gender In The Workplace
- MGMT 29450 - Leadership Development To Bridge Gender Divide
- MGMT 29500 - Career Readiness & Exploration
- MSL 20200 - Army Doctrine And Decision Making
- MUS 16100 - Class Piano And Musicianship I
- MUS 25000 - Music Appreciation
- MUS 29200 - Music, Media, And Technology
- NS 21300 - Sea Power And Maritime Affairs
- NS 21400 - Naval Leadership And Management

## Prefixes Q-Z

- PHIL 11400 - Global Moral Issues

- PHIL 11500 - Philosophy: What Are You Going To Do With That?
- 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 20800 - Ethics Of Data Science
- 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
- POL 13000 - Introduction To International Relations
- POL 14100 - Governments Of The World
- POL 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy
- POL 22300 - Introduction To Environmental Policy
- POL 22800 - Data Science And Public 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
- PSY 12300 - Beyond Mental Health: The Science Of Well-Being

## Non-Introductory Courses

*Courses 30000-level or above or courses with a pre-requisite in the same department*

### Non-Introductory Course List

- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 39200 - Caribbean History And Culture

- AAS 47300 - Blacks In Hollywood Film
- AAS 57500 - Theories Of African American Studies
- AD 30000 - Life Drawing II
- AD 30400 - Video Art
- AD 30500 - Industrial Design I
- AD 30600 - Industrial Design II
- AD 30701 - History Of Contemporary Photography
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 31400 - Experimental Drawing
- AD 31500 - Design Methodology
- AD 31800 - Fundamentals Of Interactive Multimedia Design
- AD 31900 - Web Design For Visual Communication
- AD 32600 - Physical Computing
- AD 33000 - Interior Design III
- AD 33100 - Digital Video Production And Aesthetics
- AD 33200 - Visual Communication Design I
- AD 33300 - Photo Silk Screen
- AD 33400 - New Media Culture
- AD 33700 - Commercial And Professional Practice In Photography
- AD 33800 - Advanced Interior Design Communication
- AD 33900 - Women Artists In The 20th Century
- AD 34000 - Furniture Development
- AD 34200 - Ceramics II
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34800 - History Of Islamic Art
- AD 35000 - Interior Design IV
- AD 35900 - Medieval European Art
- AD 36101 - The Constructed Image
- 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 - Alternative Photographic Processes
- AD 38200 - A Global History Of Modern Art
- 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 39600 - Art Museum Practices
- AD 39700 - Sustainability In The Built Environment

- AD 40000 - Advanced Painting
- AD 40400 - Moldmaking And/Or Wheel-Throwing Production Techniques In Ceramics
- AD 40500 - Industrial Design III
- AD 40600 - Industrial Design IV
- AD 41500 - Professional Techniques
- AD 41600 - Seminar On Ideas In Industrial Design II: Design And Creative Problem Solving Methods
- AD 41700 - Variable Topics In Electronic And Time-Based Art
- AD 42100 - Advanced Studies In Photography And Related Media I
- AD 43000 - Interior Design V
- AD 43100 - Visual Communication Design III
- AD 43200 - Visual Communication Design IV
- AD 44000 - Interior Detailing And Construction
- AD 44200 - Ceramics III
- AD 45400 - Modern Architecture
- AD 46200 - Metalsmithing
- AD 46800 - Printmaking III
- AD 47000 - Advanced Studies In Textiles
- AFT 35100 - Leading People And Effective Communication I
- AFT 36100 - Leading People And Effective Communication II
- AFT 47100 - National Security/Commissioning Preparation I
- AFT 48100 - National Security/Commissioning Preparation II
- AGEC 30500 - Agricultural Prices
- 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 Industrial Selling
- AGEC 33300 - Food Distribution - A Retailing Perspective
- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 41100 - Farm Management
- AGEC 42100 - Advanced Commodity Marketing
- 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 Industrial Sales And Marketing
- AGEC 45000 - International Agricultural Trade
- AGEC 45500 - Agricultural Law
- AGEC 45600 - Federal Income Tax Law
- AMST 30100 - Perspectives On America
- AMST 31000 - Invention, Innovation, And Design
- AMST 32000 - Understanding The National Football League
- AMST 32500 - Sports, Technology, And Innovation
- AMST 33000 - American Car Culture
- 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 32700 - Environment And Culture
- 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 35800 - African Cultures
- 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 38400 - Designing For People: Anthropological Approaches
- ANTH 39200 - Selected Topics In Anthropology
- ANTH 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ANTH 40400 - Comparative Social Organization
- ANTH 40500 - Ethnographic Methods
- ANTH 41400 - Introduction To Language And Culture
- ANTH 41800 - Field Methods In Cultural Anthropology
- ANTH 42500 - Archaeological Method And Theory
- ANTH 42800 - Field Methods In Archaeology
- ANTH 43600 - Human Evolution
- ANTH 43800 - Field Methods In Biological Anthropology
- ANTH 46000 - Contemporary Issues In Agriculture
- ANTH 48200 - Sexual Diversity In Global Perspectives
- ANTH 50400 - Archaeological Theory
- ANTH 50500 - Culture And Society
- ANTH 50600 - The Development Of Modern Anthropology
- ANTH 50700 - History Of Theory In Anthropology
- ANTH 51400 - Anthropological Linguistics
- ANTH 51900 - Introduction To Semiotics
- ANTH 53400 - Human Osteology
- ANTH 53500 - Foundations Of Biological Anthropology
- ANTH 53600 - Primate Ecology
- ANTH 56300 - Historical Linguistics
- ANTH 56500 - Sociolinguistics
- ANTH 57500 - Economic Anthropology
- ANTH 58900 - Archaeology And Materials Science
- ARAB 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI



- ARAB 33400 - North African Literature And Culture
- ARAB 58700 - Modern Arab Thought
- ASAM 34000 - Contemporary Issues In Asian American Studies
- ASAM 34200 - Special Topics In Asian American Studies
- ASL 10200 - American Sign Language II
- ASL 20100 - American Sign Language III
- ASL 20200 - American Sign Language IV
- ASL 30100 - American Sign Language V
- ASL 30200 - American Sign Language Advanced-Level VI
- ASL 36100 - The Structure Of American Sign Language I: Phonology And Morphology
- ASL 36200 - The Structure Of American Sign Language II: Syntax, Semantics And Language Use
- ASL 36400 - Introduction To Structure Of American Sign Language
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- CHNS 20200 - Chinese Level IV
- CHNS 30100 - Chinese Level V
- CHNS 30200 - Chinese Level VI
- 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
- CLCS 33700 - The Ancient Epic
- CLCS 38000 - Alexander The Great And Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38400 - Ancient Western Medicine
- 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 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- CLCS 49900 - Special Topics In Classics
- CLCS 59000 - Directed Reading In Classics
- COM 30300 - Intercultural Communication
- COM 30301 - Mentored Intercultural Communication Experience
- COM 30400 - Quantitative Methods For Communication Research
- 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 33000 - Theories Of Mass Communication
- COM 33200 - Television Production
- COM 33600 - Advertising Media Strategy
- COM 33701 - Producing Digital Advertising
- COM 35100 - Mass Communication Ethics
- COM 35200 - Mass Communication Law
- COM 35300 - Problems In Public Relations
- COM 35600 - Problems In Advertising
- COM 37200 - Communication In Relationships
- COM 37400 - Social Interaction Skills: Assessment And Development
- COM 37500 - Conflict And Negotiation
- COM 37600 - Communication And Gender
- COM 37800 - Introduction To Health Communication
- COM 38100 - Gender And Feminist Studies In Communication
- COM 40700 - Introduction To New Media/Social Media Production
- 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 41900 - Judgment And Decision Making
- COM 42300 - Leadership, Communication And Organizations
- COM 42700 - Careers, Communication Issues And Strategies
- COM 43500 - Communication And Emerging Technologies
- COM 44400 - Introduction To Communication And Social Entrepreneurship
- COM 44700 - The Television Documentary
- COM 44900 - Media Management
- COM 45300 - Reporting Of Science News
- COM 45600 - Advertising Writing
- COM 46400 - American Political Communication
- COM 47800 - Health Communication Campaigns
- COM 49501 - Sports Media Relations
- COM 49502 - Travel Writing
- COM 49503 - Public Relations For Social Change
- COM 49505 - Sports Communication
- COM 50700 - Introduction To Semiotics
- COM 50800 - Nonverbal Communication In Human Interaction
- COM 51200 - Theories Of Interpersonal Communication
- COM 51800 - Theories Of Persuasion
- COM 52000 - Small Group Communication
- COM 52700 - Introduction To Cultural Studies In Communication
- COM 55800 - Historical Trends In Mass Communication Research
- COM 55900 - Current Trends In Mass Communication Research
- COM 56500 - Sociolinguistics
- COM 57400 - Organizational Communication
- COM 57600 - Health Communication
- 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 34400 - Fundamentals Of Negotiations
- CSR 38600 - Risk Management
- CSR 40400 - Strategic Issues For Sales And Retailing
- CSR 40600 - E-Retailing
- CSR 41500 - Sales Force Management
- CSR 41600 - Retail Supply Chain Management
- CSR 41800 - Selling And Sales Management Capstone
- CSR 42100 - Apparel Design III
- CSR 48100 - Ethics And Compliance In Financial Counseling And Planning
- CSR 48400 - Consumer Investment And Savings Decisions
- CSR 48500 - Case Studies In Financial Planning
- CSR 48600 - Retirement Planning And Employee Benefits
- CSR 49000 - Independent Study
- CSR 50300 - Transitional Health Disparities: Research, Practice, And Policy
- CSR 58100 - Social Marketing And Social Change
- DANC 30100 - Modern Dance Techniques III
- DANC 34500 - Choreography
- DANC 34600 - Intermediate Choreography
- ECON 30100 - Managerial Economics
- ECON 31200 - Energy Economics: Competition, Regulatory, And Environmental Policy
- ECON 32200 - Economics Of Public Policy
- ECON 32500 - Economics Of Sports
- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36000 - Econometrics
- ECON 36100 - Antitrust And Regulation
- ECON 36200 - Health Economics
- ECON 36500 - History Of Economic Thought
- ECON 36700 - Law And Economics
- ECON 37000 - International Trade
- ECON 37600 - Economics Of The European Union
- ECON 38000 - Money And Banking
- ECON 38500 - Labor Economics
- ECON 42200 - Public Finance And Taxation
- ECON 45100 - Game Theory
- ECON 45500 - Historical Development Of Modern Economics
- ECON 45600 - Urban Economics
- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- EDPS 31500 - Collaborative Leadership: Interpersonal Skills
- EDPS 31600 - Collaborative Leadership: Cross-Cultural Settings

- EDPS 31700 - Collaborative Leadership: Mentoring
- EDPS 32000 - Happiness And Well-Being: Introduction To Positive Psychology
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 20500 - Introduction To Creative Writing
- ENGL 30100 - Ways Of Reading
- ENGL 30400 - Advanced Composition
- ENGL 30600 - Introduction To Professional Writing
- ENGL 30900 - Digital Design And Production
- ENGL 31600 - Craft Of Fiction From A Writer's Perspective
- ENGL 31700 - Craft Of Poetry From A Writer's Perspective
- ENGL 32200 - Word, Image, Media
- ENGL 32700 - English Language I: History And Development
- ENGL 32800 - English Language II: Structure And Meaning
- ENGL 32900 - English Language III: Sound And Form
- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33200 - Games And User Experience (UX)
- ENGL 34100 - Topics In Science, Literature, And Culture
- ENGL 34200 - Legal Fictions
- ENGL 34300 - Labor And Literature
- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- ENGL 34500 - Games And World Building
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian 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 36700 - Mystery And Detective Fiction
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37401 - Studies In British Literary History
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37800 - Studies In American Literary History
- ENGL 37900 - The Short Story
- ENGL 38000 - Issues In Rhetoric And Public Life
- 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 39200 - Young Adult Literature
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ENGL 39900 - Beyond English
- 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 42201 - Writing For The Health And Human Sciences
- ENGL 42400 - Writing For High Technology Industries
- ENGL 43201 - Editing And Publishing
- ENGL 43300 - Writing Proposals And Grants
- ENGL 43400 - Science And Medical Writing
- ENGL 43900 - Topics In Disability Studies
- ENGL 44100 - Chaucer's Canterbury Tales
- ENGL 44200 - Shakespeare
- 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 47000 - Advanced Topics In Rhetorical Studies
- ENGL 49200 - Literature In The Secondary Schools
- ENGL 50100 - Introduction To English Studies
- ENGL 50600 - Introduction To English And General Linguistics
- ENGL 50700 - Advanced Poetry Writing
- ENGL 50900 - Advanced Fiction Writing
- ENGL 51000 - History Of The English Language
- ENGL 51100 - Semantics
- ENGL 51200 - English Syntax And Syntactic Theory
- ENGL 51300 - English Phonology
- ENGL 51500 - Advanced Professional Writing
- ENGL 52800 - Medieval English Literature
- ENGL 53100 - The Rise Of The Novel
- ENGL 53200 - The English Novel In The Nineteenth Century
- ENGL 53400 - Seventeenth-Century Literature
- ENGL 53500 - Restoration And Early Eighteenth-Century Literature
- ENGL 53800 - English Drama From The Restoration To The Modern Period
- ENGL 54100 - Studies In Chaucer's Canterbury Tales
- ENGL 54300 - Shakespeare In Critical Perspective
- ENGL 54400 - Milton
- ENGL 54700 - British Romanticism
- ENGL 54800 - Victorian Literature
- ENGL 55200 - Studies In Major American Authors
- ENGL 55300 - Colonial And Early American Literature
- ENGL 55400 - American Literary Culture 1820-1860
- ENGL 55700 - Nineteenth-Century African-American Narrative
- ENGL 55800 - American Literature In The Later Nineteenth Century
- ENGL 56000 - Modern American Poetry
- ENGL 56100 - Modern British Poetry

- ENGL 56300 - Historical Linguistics
- ENGL 56500 - Sociolinguistics
- ENGL 56900 - Contemporary Criticism And Theory
- ENGL 57000 - Introduction To Semiotics
- ENGL 57300 - Tragedy
- ENGL 57800 - Early Twentieth-Century American Fiction
- ENGL 57900 - Modern British Fiction
- ENGL 58000 - Theories Of Modernity And Postmodernity
- ENGL 58300 - U S Ethnic/Multicultural Literature
- ENGL 58500 - Creative Nonfiction Writing
- ENGL 58900 - Directed Writing
- ENGL 59000 - Directed Reading
- ENGL 59100 - Introduction To Composition Theory
- ENGL 59200 - Postcolonial Studies
- ENGL 59300 - Contemporary British Fiction
- ENGL 59400 - Contemporary Poetry
- ENGL 59500 - Contemporary American Fiction
- ENGL 59600 - Advanced Studies In Literature Or Language
- ENGL 59700 - Contemporary Black Feminist Literature
- ENGL 59900 - Academic Language And Content Area Learning
- ENGR 31000 - Engineering In Global Context
- ENTR 31000 - Marketing And Management For New Ventures
- ENTR 31500 - Business Planning For Social Entrepreneurship
- ENTR 47000 - Gender, Diversity And Leadership
- ENTR 48000 - Entrepreneurial Leadership And Careers
- ENTR 48100 - Consulting For Emerging Enterprises
- ENTR 48200 - Venture Planning Studio
- 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 31200 - Advanced French Conversation
- FR 32400 - Professional 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 39600 - Special Topics In French Language Science
- FR 39900 - Special Study Abroad Credit In French
- FR 40100 - French Level VII
- FR 40200 - French Level VIII
- FR 42400 - Professional French III
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FR 49100 - Special Topics In French
- FR 51900 - Teaching College French

- FR 52700 - Etudes de Style
- FR 54100 - Renaissance French Literature
- FR 54900 - French Literature And Film
- FR 55800 - French Novel Of The Twentieth Century
- FR 56100 - The Structure Of French I: Phonetics And Phonology
- FR 56200 - The Structure Of French II: Syntax And Morphosyntax
- FR 56300 - History Of The French Language
- FR 56400 - Introduction To Old French
- FR 58100 - French Culture
- FR 58200 - Francophone Cultures
- FS 47000 - Wine Appreciation
- GER 10200 - German Level II
- GER 20100 - German Level III
- GER 20200 - German Level IV
- 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 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 39900 - Special Study Abroad Credit In German
- GER 40100 - German Level VII
- GER 40200 - German Level VIII
- GER 42400 - Business German
- GER 48000 - German Civilization
- GER 49800 - Advanced Topics In German
- GER 51900 - Teaching College German
- GER 52400 - German For International Trade
- GER 54200 - German Classicism
- GER 54300 - The Age Of Enlightenment And The Storm And Stress Movement
- GER 54400 - German Romanticism
- GER 54500 - German Prose From Naturalism To The Present
- GER 54600 - German Literature Since 1945
- GER 55100 - Lyric Poetry From Romanticism To The Present
- GER 55400 - German Drama Before Naturalism
- GER 55500 - German Drama From Naturalism To The Present
- GER 56100 - The Structure Of German I: Phonology And Derivational Morphology
- GER 56200 - The Structure Of German II: Inflectional Morphology And Syntax
- GER 56300 - History Of The German Language
- GER 57500 - Theories Of German Language Acquisition
- GER 58100 - German Culture
- GREK 10200 - Ancient Greek Level II
- GREK 20200 - Ancient Greek Level IV
- GREK 34300 - Greek Oratory
- GREK 34400 - Greek Epic
- GREK 35300 - Greek Tragedy
- GREK 35400 - Greek Comedy

- GREK 44600 - Greek Historians
- HDFS 30500 - Biosocial Foundations Of The Family
- HDFS 31000 - Guidance In Early Childhood
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 31300 - Adolescent Development
- HDFS 31400 - Atypical Child 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 39800 - International Special Topics
- HDFS 40500 - Language, Literacy, And Social Studies In Preschool And Primary Grades
- 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
- HEBR 38300 - Kabbalah And Jewish Mysticism: Secret Knowledge In Judaism
- HEBR 38500 - The Holocaust In Modern Hebrew Literature
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30105 - Big History: Time And Scale
- HIST 30200 - Historical Topics
- HIST 30305 - Food In Modern America
- HIST 30400 - America In The 1960s
- HIST 30505 - The United States In The World 1898-Present
- HIST 30605 - Technology And War In U.S. History
- HIST 30805 - History Of Life Sciences
- HIST 30905 - History Of Environmental Science
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877
- HIST 31205 - The Arab-Israeli Conflict
- HIST 31305 - Medical Devices And Innovation
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31505 - American Beauty
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31905 - Christianity In The Global Age
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32501 - Twentieth Century Europe Through Autobiography
- HIST 32900 - History Of Women In Modern Europe
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II



- HIST 33505 - Nationalism And Socialism In East Central Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33805 - History Of Human Rights
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34505 - Arabs In American Eyes
- HIST 34705 - History Of Religion In America
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 35305 - Sports In America
- HIST 35400 - Women In America To 1870
- HIST 35500 - History Of American Military Affairs
- HIST 35900 - Gender In East Asian History
- HIST 36305 - The History Of Medicine And Public Health
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37005 - Queens And Empresses In Early Modern Europe
- 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 38105 - American Indians And Film
- HIST 38200 - American Constitutional History
- HIST 38300 - Recent American Constitutional History
- HIST 38400 - History Of Aviation
- HIST 38505 - Media, Politics And Popular Culture
- HIST 38605 - Land Of The Indians: Native Americans In Indiana
- HIST 38700 - History Of The Space Age
- HIST 39400 - Environmental History Of The United States
- HIST 39800 - African American History Since 1877
- HIST 40000 - Great Books And The Search For Meaning
- HIST 40300 - Europe In The Reformation
- 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 41005 - History Of The American Presidency
- HIST 41300 - Modern European Imperialism: Repression And Resistance
- HIST 41505 - Gender And Politics In Early Modern Europe
- HIST 42300 - Advanced Topics In Modern Germany
- HIST 45000 - The English Landscape: Integrating History, Horticulture & Landscape Architect
- 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 47005 - Women And Health In America
- HIST 47300 - History Of The South
- HIST 47600 - The Civil War In Myth And Memory
- HIST 47700 - Native American Women's History
- HIST 48005 - Madness And The Asylum In The United States
- HIST 48500 - Topics In American Political History
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49400 - Science And Society In American Civilization
- HIST 57600 - Problems In Latin American History
- HIST 57700 - Contemporary Latin America
- HIST 59000 - Directed Reading In History
- HIST 59500 - The Holocaust And Genocide
- HTM 31100 - Procurement Management For Foodservice
- HTM 31200 - Human Resources Management For The Service Industries
- HTM 31400 - Franchising
- HTM 31500 - Club Management And Operations
- HTM 32200 - Hospitality Facilities Management
- HTM 33100 - Hospitality And Tourism Sales And Service
- HTM 34100 - Operations Control And Analysis In The Hospitality Industry
- HTM 35100 - E-Business For The Hospitality Sector
- HTM 36200 - Event And Meeting Management
- HTM 37000 - Sustainable Tourism And Responsible Travel
- HTM 37200 - Global Tourism Geography
- HTM 38110 - Revenue Management In The Lodging Industry
- HTM 39200 - Classical Cuisine
- HTM 41100 - Hospitality And Tourism Law
- HTM 44100 - Financial Management For The Hospitality Industry
- HTM 46200 - Advanced Event And Meeting Management
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- 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
- 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 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 36300 - Relationship Of Japanese Language And Society
- JPNS 39900 - Special Study Abroad Credit In Japanese
- JPNS 40100 - Japanese Level VII
- JPNS 40200 - Japanese Level VIII
- JPNS 48500 - Culinary Culture Of Japan
- JPNS 52100 - Teaching Japanese As A Foreign Language
- JPNS 56000 - Survey Of Japanese Linguistics
- JPNS 57500 - Theories Of Japanese Language Acquisition
- JPNS 59000 - Directed Reading In Japanese
- JWST 33000 - Introduction To Jewish Studies
- LALS 30100 - Latin American Literary And Cultural Studies
- LALS 30300 - Latin American Languages And Linguistics
- LALS 34700 - Latin American Politics
- LALS 35500 - Political Economy Of Latin America
- LALS 40100 - Special Topics In Latin American/Latino Studies
- 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
- 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 33100 - Comparative Literature In Translation
- LC 33300 - The Middle Ages On Film
- LC 33800 - Language Through Films
- LC 36100 - Sound And Form In Language
- LC 36800 - Sociolinguistic Study Of African American English
- LC 37100 - Phonetics Of Foreign Languages
- LC 39900 - Special Study Abroad Credit In Foreign Languages
- LC 49000 - Special Topics In Foreign Languages And Literatures
- LC 56300 - Historical Linguistics
- LC 56500 - Sociolinguistics
- LC 57000 - Introduction To Semiotics
- LC 57500 - Theories Of Foreign Language Acquisition
- LING 31100 - Fundamentals Of Phonology And Morphology

- LING 31500 - Elements Of Phonetics
- LING 32100 - Foundations Of Syntax And Semantics
- LING 36800 - Sociolinguistic Study Of African American English
- LING 39800 - Special Topics In Linguistics I
- LING 49000 - Directed Reading In Linguistics
- LING 49800 - Special Topics In Linguistics II
- LING 50000 - Introduction To Linguistics
- LING 50100 - Language Acquisition
- LING 51100 - Phonology I: Descriptive Analysis
- LING 51200 - Phonology II: Theoretical Approaches
- LING 52200 - Syntax II: Issues In Syntax
- LING 53100 - Semantics I: Lexical And Sentential Semantics
- LING 53200 - Semantics II: Formal And Grammatical Semantics
- LING 54100 - Historical Linguistics And Language Change
- LING 56000 - Service Learning In Languages And Linguistics
- LING 57000 - Field Methods In Linguistics
- LING 57600 - Latin American Indigenous Languages And Cultures
- MARS 42000 - Medieval And Renaissance Studies Seminar
- 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 33100 - Development And Impact of Equal Employment Law
- MGMT 35200 - Strategic Management
- MGMT 35500 - Consulting Tools And Skills
- MGMT 36100 - Operations Management
- MGMT 38200 - Management Information Systems
- MGMT 39100 - Strategic Thinking And Decision-Making
- MGMT 42000 - Consumer Analytics
- MGMT 44301 - Management Of Human Resources
- MGMT 44310 - China, America And Artificial Intelligence
- MGMT 44362 - Leadership In A Changing World
- MGMT 44428 - Human Resources Management
- MGMT 44429 - Talent Management
- MGMT 44430 - Staffing: Talent Acquisition
- MGMT 44432 - Employee And Leadership Development
- MGMT 44433 - Leading And Working In Teams
- MGMT 44690 - Negotiation And Decision Making
- MGMT 44710 - Competitive Strategy
- MGMT 44810 - Technology Strategy
- MGMT 45500 - Legal Background For Business I
- MGMT 45600 - Legal Foundations For Business II
- MGMT 45900 - International Management
- MGMT 48400 - Management Of Entrepreneurial Ventures
- MGMT 49200 - Intellectual Property Management
- MSL 30100 - Training Management And The Warfighting Function

- MSL 30200 - Applied Leadership In Small Unit Operations
- MSL 35000 - American Military History And Leadership
- MSL 40100 - The Army Officer
- MSL 40200 - Company Grade Leadership
- MUS 34100 - Music Composition I
- MUS 34200 - Music Composition II
- MUS 37800 - Jazz History
- MUS 38100 - Music History I: Antiquity To Mozart
- MUS 38200 - Music History II: Beethoven To The Present
- NS 33000 - Evolution Of Warfare
- NS 41300 - Naval Leadership And Ethics
- NS 44000 - Fundamentals Of Maneuver Warfare
- NUTR 30300 - Essentials Of Nutrition
- OBHR 33000 - Introduction To Organizational Behavior
- OBHR 42900 - Labor Relations
- 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 31000 - Classical Chinese Philosophy
- PHIL 32200 - Philosophy Of Technology
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40300 - Moral Psychology And Climate Change
- 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 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- 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
- PHIL 50700 - Recent American Philosophy
- PHIL 51000 - Phenomenology
- PHIL 51400 - Twentieth-Century Analytical Philosophy I
- PHIL 51500 - Twentieth-Century Analytical Philosophy II
- PHIL 52000 - Existentialism
- PHIL 52400 - Contemporary Ethical Theory
- PHIL 52500 - Studies In Metaphysics
- PHIL 53000 - Deconstructionist And Postmodernist Philosophy
- PHIL 53200 - Studies In Theory Of Knowledge
- PHIL 53500 - Studies In Philosophy Of Mind
- PHIL 54000 - Studies In Social And Political Philosophy

- PHIL 54500 - Recent Analytic Philosophy
- PHIL 55100 - Philosophy Of The Natural Sciences
- PHIL 55200 - Philosophy Of The Social Sciences
- PHIL 55500 - Critical Theory
- PHIL 56100 - Reading Philosophy: Skills And Strategies
- PHIL 56200 - Reading To Argue
- PHIL 57100 - Writing To Learn
- PHIL 57200 - Writing To Argue
- 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 33500 - China And The Challenges Of Globalization
- 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 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- 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 42500 - Environmental Law And Politics
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems
- POL 43000 - Selected Problems In International Relations
- POL 43200 - Selected Problems In World Order
- POL 43300 - International Organization
- POL 43500 - International Law
- POL 43801 - International Human Rights
- POL 43900 - United States Foreign Policy Making
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I
- POL 46200 - Constitutional Law II
- POL 49100 - Political Science Senior Seminar
- POL 49300 - Interdisciplinary Undergraduate Seminar
- POL 50100 - Political Science: Methodology
- POL 52300 - Environmental Politics And Public Policy
- POL 52400 - Public Policy And The Family
- POL 53100 - Terrorism And WMD Threat Assessment
- POL 53200 - Nuclear Strategy And Proliferation
- PSY 30600 - Understanding And Analyzing Experiments

- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32400 - Introduction Cognitive Neuroscience
- PSY 32700 - Psychology Of Helping
- 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 35200 - Introduction To Neuropsychology
- PSY 35400 - Close Relationships
- PSY 36700 - Adult Development And Aging
- PSY 37600 - Attention And Cognitive Control
- PSY 38000 - Behavior Change Methods
- PSY 39100 - Readings In Psychology
- PSY 39200 - Special Topics In Psychology
- PSY 39800 - Independent Research In Psychology
- PSY 40100 - Language And The Brain
- PSY 40300 - Psycholinguistics
- PSY 41800 - Understanding Autism
- 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 43200 - Social Psychology In Film
- PSY 43400 - Neurobiology Of Disease
- PSY 43600 - Foods And Behavior
- PSY 43800 - Introduction To Clinical Psychology
- PSY 44300 - Aggression And Violence
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PSY 49200 - Internship In Psychology
- PSY 50600 - Professional Issues And Trends In Social Psychology
- PSY 50700 - Current Readings In Social Psychology
- PSY 51100 - Psychophysics
- PSY 51200 - Neural Systems
- PSY 51300 - Introduction To Computational Cognitive Neuroscience
- PSY 51400 - Introduction To Mathematical Psychology
- PSY 51500 - Neuroscience Of Consciousness
- PSY 52200 - An Introduction To Pediatric Psychology
- PSY 58100 - Neuroethics
- 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
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics
- REL 45100 - Christology
- REL 45200 - Systematic Theology
- 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 38000 - Russian Culture And Civilization I
- RUSS 38100 - Russian Culture And Civilization II
- RUSS 39900 - Special Study Abroad Credit In Russian
- RUSS 40100 - Russian Level VII
- RUSS 40200 - Russian Level VIII
- RUSS 42400 - Business Russian
- RUSS 49700 - Topics In Russian Literature
- RUSS 49800 - Topics In Russian Culture
- RUSS 56100 - The Structure Of Russian I: Phonology And Syntax
- RUSS 56200 - The Structure Of Russian II: Morphology
- SCLA 10200 - Transformative Texts, Critical Thinking And Communication II: Modern World
- SLHS 30100 - Introduction To Cognitive Neuroscience
- SLHS 30200 - Hearing Science
- SLHS 30300 - Anatomy And Physiology Of The Speech Mechanism
- SLHS 30600 - Introduction To Phonetics
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 40300 - Psycholinguistics
- SLHS 41800 - Understanding Autism
- SLHS 41900 - Topics In Audiology And Speech Pathology
- SLHS 42000 - Introduction To Developmental Speech And Language Disorders
- SLHS 43000 - Speech-Language Disorders In Health Care Settings
- SLHS 44400 - Introduction To Research In Communication Sciences And Disorders
- SLHS 44900 - Introduction To Clinical Practice In Communication Disorders
- SLHS 46000 - Assessment Audiology And Aural Rehabilitation Across The Lifespan
- SOC 31000 - Race And Ethnicity
- 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 33500 - Political Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Sociology Of Global Development
- SOC 34000 - General Social Psychology
- SOC 34400 - Environmental Sociology
- SOC 35000 - Sociology Of Family
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 36900 - Religion And Chinese Society
- SOC 37400 - Medical Sociology
- SOC 37700 - Sociology Of Mental Health
- SOC 38200 - Introduction To Statistics In Sociology
- SOC 40200 - Sociological Theory
- SOC 40900 - Social Networks
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42100 - Juvenile Delinquency
- SOC 42900 - Sociology Of Protest
- SOC 43200 - Work In Contemporary America
- SOC 45000 - Gender Roles In Modern Society
- SOC 51400 - Racial And Cultural Minorities
- SOC 52500 - Social Movements
- SOC 53100 - Community Organization
- SOC 57000 - Sociology Of Education
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare
- SOC 57600 - Health And Aging In Social Context
- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 30100 - Spanish Level V
- SPAN 30200 - Spanish Level VI
- SPAN 30500 - Spanish For Heritage Speakers
- SPAN 30801 - Advanced Spanish For Heritage Speakers
- SPAN 31200 - Advanced Spanish Conversation
- SPAN 32100 - Introduction To Spanish For The Professions
- SPAN 32200 - Spanish For The Health Professions
- SPAN 32500 - Spanish For Engineering And Technology
- 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 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 48500 - Food And Culture In The Hispanic World
- SPAN 49800 - Advanced Topics In Spanish
- SPAN 51900 - Teaching College Spanish
- SPAN 54000 - Spanish Literature Of The Middle Ages
- SPAN 54100 - Spanish Literature Of The Golden Age
- SPAN 54200 - Cervantes Don Quijote
- SPAN 54300 - Spanish Literature Of The 18th And 19th Centuries
- SPAN 54500 - Spanish Literature Of The 20th Century
- SPAN 54900 - Hispanic Women Writers
- SPAN 55000 - Spanish American Literature Of The Colonial Period
- SPAN 55100 - Spanish American Literature Of The 19th Century
- SPAN 55200 - Spanish American Literature From 1900 To 1970
- SPAN 55300 - Spanish American Literature From 1970 - Present
- SPAN 55400 - Hispanic Caribbean Literature
- SPAN 55500 - Latino/a Literature
- SPAN 55600 - Mexican Literature
- SPAN 55700 - Argentine Literature
- SPAN 56100 - The Structure Of Spanish I: Phonetics, Phonology, And Dialectology
- SPAN 56200 - The Structure Of Spanish II: Morphology, Lexicology, And Syntax
- SPAN 56300 - History Of The Spanish Language
- SPAN 56401 - Spanish Sociolinguistics
- THTR 32300 - Acting: Movement For The Actor
- THTR 33300 - Acting II: Scene Study
- THTR 33400 - Acting III: Acting For The Camera
- THTR 38000 - History Of Theatre I
- THTR 38100 - History Of Theatre II
- THTR 43300 - Acting IV: Acting Shakespeare
- THTR 43400 - Advanced Acting Skills
- THTR 44000 - Directing: Page To Stage
- WGSS 38000 - Comparative Studies In Gender And Culture
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women, Work, And Labor
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality
- WGSS 48300 - Feminisms In Global Perspective
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies

## Course Exclusions (No Count Courses)

## Prohibited Courses

The following courses are NOT accepted as credit toward the IE degree in any capacity (core, GE, or TE). These courses can be counted for minor or certificate requirements, but not any BSIE requirements. Students should reference the IE General and Technical Elective Lists for approved course options.

- EAPS 10500 - The Planets
- ECON 36000 - Econometrics
- FS 47000 - Wine Appreciation
- MGMT 30400 - Introduction To Financial Management
- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science
- MGMT 31000 - Financial Management
- MGMT 36100 - Operations Management
- NUTR 30300 - Essentials Of Nutrition
- PSY 20100 - Introduction To Statistics In Psychology
- PSY 20300 - Introduction To Research Methods In Psychology
- PSY 30600 - Understanding And Analyzing Experiments
- SOC 38200 - Introduction To Statistics In Sociology

## Purdue Polytechnic Courses

All courses from Purdue Polytechnic are EXCLUDED from being used for any BSIE degree requirement other than the University Core Curriculum Foundational Learning Outcomes. Once an FLO has been met, any courses taken from Polytechnic cannot be used. (See Prefix list for Polytechnic courses)

## Other Excluded Courses

- ECON 45100 - Game Theory
- EPCS 11100 - First Year Participation In EPICS I
- EPCS 12100 - First Year Participation In EPICS II

## STEM Courses

All STEM courses other than those listed in the "Included" list cannot be used for any GE requirement other than the University Core Curriculum Foundational Learning Outcomes. Once the FLO has been met, courses in the following areas are EXCLUDED unless listed on the Included list. This is not an exhaustive list of the subject areas, but the most frequently seen.

- AAE
- ABE
- CE
- CHE
- ECE
- EEE
- IE
- IDE
- MDE

- ME
- MSE
- NUCL
- SYS
- MA
- PHYS
- CHM
- BIO
- BIOL
- EAPS
- NUTR

## Industrial Engineering Supplemental Information

### IE Technical Electives (15 credits)

- Required IE Technical Requirement - Credit Hours: 6.00
- Technical Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00
- Technical Elective - Credit Hours: 3.00

#### 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 Requirement

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 IE Selective - approved course offered within the School of Industrial Engineering (either at senior-undergraduate or 50000-level)
- \* The 50000-level IE course listed in Option 2 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 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. See VT Process: Variable Title Information - Office of the Registrar - Purdue University

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.

## Required IE Selectives (6 credits)

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.

- IE 47000 - Manufacturing Processes II
- IE 47200 - Imagine, Model, Make
- IE 48100 - Introduction To System Simulation
- IE 48400 - Integrated Production Systems II
- IE 49000 - Special Topics In Industrial Engineering \* See advisor for Variable Title course instructions
- 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 54100 - Nature-Inspired Computation
- 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 56100 - Introduction To Convex Optimization
- IE 56600 - Production Management Control
- IE 57000 - Manufacturing Process Engineering
- IE 57400 - Industrial Robotics And Flexible Assembly
- IE 57700 - Human Factors In Engineering
- IE 57800 - Applied Ergonomics
- 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 \* See advisor for Variable Title course instructions

## Technical Elective Requirements (9 credits)

- AAE 56100 - Introduction To Convex Optimization
- AGECE 33000 - Management Methods For Agricultural Business
- AGECE 33100 - Principles Of Industrial Selling
- AGECE 41200 - Farm Business Management Workshop
- AGRY 33700 - Environmental Hydrology
- ANTH 38400 - Designing For People: Anthropological Approaches
- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability
- CE 36100 - Transportation Engineering
- CE 40800 - Geographic Information Systems In Engineering
- CS 30700 - Software Engineering I
- CS 31400 - Numerical Methods
- ECE 26400 - Advanced C Programming
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition
- ECON 45100 - Game Theory
- ECON 46100 - Industrial Organization
- ECON 46600 - International Economics
- ECON 51100 - Intermediate Economics I
- ECON 51200 - Intermediate Economics II
- ECON 56200 - Econometrics I
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENTR 48000 - Entrepreneurial Leadership And Careers
- ENTR 48100 - Consulting For Emerging Enterprises
- ENTR 48200 - Venture Planning Studio
- MA 30100 - An Introduction To Proof Through Real Analysis
- MA 34100 - Foundations Of Analysis
- MA 35301 - Linear Algebra II
- 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 46000 - Geometry
- 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 25400 - Legal Foundations Of Business I
- MGMT 26100 - Introduction To Supply Chain Management
- 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 41100 - Investment Management
- MGMT 41150 - Futures And Options
- MGMT 41250 - Fixed Income Securities
- MGMT 41300 - Corporate Finance
- MGMT 41310 - Financial Data Analysis And Modeling
- MGMT 41500 - International Financial Management
- MGMT 41601 - Corporate Mergers And Acquisitions
- MGMT 42000 - Consumer Analytics
- MGMT 42110 - Marketing Analytics
- MGMT 42300 - New Product Development
- MGMT 42210 - International Marketing
- MGMT 42500 - Marketing Research
- MGMT 44301 - Management Of Human Resources
- MGMT 44362 - Leadership In A Changing World
- MGMT 44690 - Negotiation And Decision Making
- MGMT 44810 - Technology Strategy
- MGMT 45500 - Legal Background For Business I
- MGMT 46300 - Supply Chain Analytics
- MGMT 47300 - Data Mining
- MGMT 48400 - Management Of Entrepreneurial Ventures
- MGMT 48800 - Data-Driven Decisions In Digital Markets
- 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 38300 - Introduction To Research Methods In Sociology
- 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
- EPICS (EPCS) courses - up to a maximum of three (3) credits (if used to satisfy STS in General Education or First-Year Engineering requirements, then they will not count for Tech Elective Requirement)
- IE Selectives List (see above list)
  - IE 5XX00-level courses, provided they are titled and open to all students who meet the prerequisites.
  - IE 4XX00-level courses, provided they are not required for the degree and open to all students who meet the prerequisites.
  - 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. (up to 6 credit hours).
  - IE 49900 (Reserved for Engineering Honors students; up to 6 credit hours).
  - IE 49500 (Reserved for Co-Op students; student must complete 3 semesters to earn TE credit)

## Industrial Engineering General Education Requirements (24 credits)

- General Education Elective I - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education Elective II - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education Elective III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education Elective IV - Credit Hours: 0.00-3.00 (satisfies Information Literacy for core, if needed)
- General Education Elective V - Credit Hours: 3.00
- General Education Elective VI - Credit Hours: 3.00-5.00
- *General Education Electives - Credit Hours: 6.00 (should be satisfied in First-Year Engineering for Written Communication & Oral Communication)*

*At least 6 credits must be 30000-level or higher or Non-Introductory*

## General Education Program Information

### 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. 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)
  - Agricultural&nbsp;Sciences Education & Communication (ASEC)
- 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

#### **4.2) 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.

### **No Count List (Prohibited Courses)**

- EAPS 10500 - The Planets
- ECON 36000 - Econometrics
- FS 47000 - Wine Appreciation
- MGMT 30400 - Introduction To Financial Management
- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science
- MGMT 31000 - Financial Management
- MGMT 36100 - Operations Management
- MGMT 40500 - Six Sigma And Quality Analytics
- NUTR 30300 - Essentials Of Nutrition
- PSY 20100 - Introduction To Statistics In Psychology
- PSY 20300 - Introduction To Research Methods In Psychology
- PSY 30600 - Understanding And Analyzing Experiments
- SOC 32800 - Criminal Justice
- STAT 30100 - Elementary Statistical Methods
- See prefixes for Polytech Institute: ActivePWLPrefixes.pdf (purdue.edu)

## Notes

- If you wish to appeal to have a course added to this list, please contact your IE academic advisor for information.
- EAPS courses can only be used to satisfy the one Science, Technology, and Society (STS) outcome

# 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

701 West Stadium Avenue

West Lafayette, IN 47907-2045

Telephone: (765) 494-4100

FAX: (765) 494-1204

E-mail regarding academic programs: [MSEAdvisor@purdue.edu](mailto:MSEAdvisor@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

Materials Engineering Major Change (CODO) Requirements

### **Degree Requirements**

## **125 Credits Required**

### **Departmental/Program Major Requirements (63 credits)**

#### **Required Major Courses (45 credits)**

Major GPA is Minimum of 2.0 for Major courses (MSE)

- 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 - must be taken 6 times and passed with a grade of S - S(satisfactory)/U(unsatisfactory) course
- 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 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

The Technical Electives require 18 credits and can be met in one of three ways:

1. 18 credits of Technical Electives
2. 15 credits of Technical Electives plus 3 credits of Support Area
3. 12 credits of Technical Electives plus 6 credits of Support Area.

*(see Supplemental Information for courses)*

## Other Departmental/Program Course Requirements (61-75 credits)

### First-Year Engineering Requirements (29-39 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.*

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) *(satisfies Quantitative Reasoning for core)*
- Requirement #4 - Calculus II (4-5 credits) *(satisfies Quantitative Reasoning for core)*
- Requirement #5 - Chemistry I (4-6 credits) *(satisfies Science #1 for core)*
- Requirement #6 - Physics (4 credits) *(satisfies Science #2 for core)*
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) *(could satisfy Written Communication, Information Literacy or Oral Communication for core)*

### Other Departmental Requirements (14-18 credits)

- CHM 11600 - General Chemistry (if not taken in FYE) (C- or better)
- MA 26100 - Multivariate Calculus



### **Mathematics Linear & Differential Equations Requirement (6 credits)**

- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations
- Alternative Mathematics Linear and Differential Equations Requirement: MA 26200 + (MA 30300 or MA 35100)
- MA 26200 - Linear Algebra And Differential Equations  
AND
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences or
- MA 35100 - Elementary Linear Algebra
- PHYS 24100 - Electricity And Optics ♦ and
- PHYS 25200 - Electricity And Optics Laboratory ♦  
OR
- PHYS 27200 - Electric And Magnetic Interactions ♦

## MSE General Education Requirement (18 Credits)

Non-Introductory Requirement: *At least 6 credits must be non-introductory (30000-level + and courses with a required pre-requisite in the same department).*

*No more than 6 credit hours from the College of Engineering, Science, or Polytechnic Institute. (see prefix list)*

Foundation Core (9 credits) *(Must earn C- or better)*

- General Education Humanities (satisfies Human Cultures: Humanities for core) - Credit Hours: 3.00
- General Education BSS (satisfies Human Cultures: Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education STS (satisfies Science, Technology & Society for core) - Credit Hours: 3.00

### **General Education (9 credits)**

- General Education Elective - Credit Hours: 9.00

*(see Supplemental Information for courses)*

## Supplemental List

[Click here for Materials Engineering Supplemental Information](#)

## Grade Requirements

If taken, CS 15900 (C- or better), CHM 11600 (C- or better)

## GPA Requirements

- Students must have a graduation index of 2.0
- Must have minimum average GPA of 2.0 in Major/MSE courses.

## Course Requirements and Notes

- Prior to taking MSE 43000, students must take MSE 25000 and MSE 27000 and MSE 26000; MA 26500 and MA 26600 (or MA 26200), PHYS 24100 or PHYS 27200
- MSE 39000 must be take 6 times and successful passed (Grade of S). Study Abroad, Coop or Intern ship may count as professional development toward this requirement (See Advisor)

## Pass/No Pass Policy

- All courses must be taken for a grade with the exception of MSE 39000 and General Elective Courses can be Pass/No Pass. (University Core courses must be taken as a grade)

## Transfer Credit Policy

See the University Transfer Credit Policy

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

**The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency website.**

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Additional Information

*Any additional information that does not fit into any of the categories above.*

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Materials Engineering Plan of Study

## Fall 2nd Year

- CHM 11600 - General Chemistry (if not taken in FYE)
- MA 26100 - Multivariate Calculus
- MA 26500 - Linear Algebra
- MSE 23000 - Structure And Properties Of Materials
- MSE 27000 - Atomistic Materials Science
- MSE 25000 - Physical Properties In Engineering Systems
- MSE 39000 - Materials Engineering Seminar

## 16-20 Credits

## Spring 2nd Year

- MA 26600 - Ordinary Differential Equations
- MSE 23500 - Materials Properties Laboratory
- MSE 26000 - Thermodynamics Of Materials
- MSE 39000 - Materials Engineering Seminar
- PHYS 24100 - Electricity And Optics ♦ and
- PHYS 25200 - Electricity And Optics Laboratory ♦  
OR
- PHYS 27200 - Electric And Magnetic Interactions ♦
- General Elective I - Credit Hours: 3.00

## 16 Credits

## Fall 3rd Year

- MSE 33500 - Materials Characterization Laboratory or
- MSE 36700 - Materials Processing Laboratory
- MSE 34000 - Transport Phenomena
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 39000 - Materials Engineering Seminar
- MSE 42000 - Structure And Properties Of Organic Materials
- General Elective II - Credit Hours: 3.00

## 15 Credits

## Spring 3rd Year

- MSE 33000 - Processing And Properties Of Materials
- MSE 36700 - Materials Processing Laboratory or
- MSE 33500 - Materials Characterization Laboratory
- MSE 38200 - Mechanical Response Of Materials
- MSE 39000 - Materials Engineering Seminar
- General Education Elective III - Credit Hours: 3.00

- 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
- General Elective V - Credit Hours: 3.00
- General Elective VI - 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

## 18 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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)

### Core Requirements (9 credits)

- MSE 23000 - Structure And Properties Of Materials
- MSE 26000 - Thermodynamics Of Materials
- MSE 33000 - Processing And Properties Of Materials

### 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 44500 - Materials Engineering Systems Analysis And Design
- MSE 49900 - Research In Materials Engineering
- 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: MA 26100; Co: MSE 23000, CHM 11600
MSE 27000	Co: MSE 23000, MA 26100 and MA 26500 (or MA 26200)
MSE 33000	Pre: MSE 23000
MSE 34000	Pre: MA 26600 (or MA 26200), MSE 26000
MSE 37000	Pre: MSE 23000, MSE 27000, PHYS 24100 (or PHYS 27200)

MSE 38200	Pre: MA 26500 (or MA 26200) and Statics/Dynamics Course
MSE 5xx00	Pre: MSE 23000 and Consent of Instructor <sup>2</sup>

## Notes

- No laboratory classes can fulfill the MSE minor requirements. This includes MSE 23500, MSE 33500, MSE 36700, MSE 43000, MSE 44000.
- A maximum of 3 credit hours of MSE 49900 can be used towards the MSE minor requirements.
- Up to two MSE 5xx level courses can be taken to fulfill the 18 credit hours required.
- If student is BME, ChE, ME, or NE, then MSE 34000 is not allowed. A different course must be selected from the rest of the 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.
- <sup>1</sup> NUCL 32000 and CE 23100 are also acceptable.
- <sup>2</sup> Prerequisites for MSE 5xx00 courses will vary by course.

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

### Materials Engineering Supplemental Information

#### Technical Electives and Support Area 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

#### Technical Electives

- 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
- CHE 59700 - Special Topics In Chemical Engineering (Title - Organic Electronic Materials And Devices)
- ECE 30500 - Semiconductor Devices
- ECE 55700 - Integrated Circuit Fabrication Laboratory
- IPPH 56200 - Introduction To Pharmaceutical Manufacturing Processes
- ME 41300 - Noise Control
- ME 50700 - Laser Processing
- ME 55400 - Intellectual Property For Engineers
- ME 55900 - Micromechanics Of Materials
- ME 59700 - Advanced Mechanical Engineering Projects I (Titles: Environmentally Sustainable Design And Manufacturing; Artificial Intelligence In Thermal Systems)
- MSE 49700 - Selected Topics In Materials Engineering (Titles - Ethics in Engineering Practice (Support or elective); Industrial Ecol & Life Cycle Analysis; Electronics Packaging And Heterogeneous Integration)
- MSE 49900 - Research In Materials Engineering (3 credits max. per semester, 6 credits max. overall) - Titles: 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 51800 - Failure Analysis
- MSE 52300 - Physical Ceramics
- MSE 52400 - Mechanical Behavior Of Polymers
- 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 56200 - Soft Materials
- MSE 56700 - Polymer Synthesis
- MSE 57500 - Transport Phenomena In Solids
- MSE 57600 - Corrosion
- MSE 58600 - Experimental Characterization Of Advanced Composite Materials
- MSE 58900 - Archaeology And Materials
- MSE 59700 - Selected Topics In Materials Engineering

(Titles - Additive Manufacturing of Materials; Design Global Sustainability; Design Global Sustainability II; Dislocation Dynamics; Dynamic Mechanical Properties; Introduction to Materials Modeling and Informatics; Kinetics of Materials; Lean Manufacturing of Materials; Magnetic Materials: Physical Properties and Applications; Materials for Hypersonics; Materials in Extreme Environments; Materials Science of Rechargeable



Batteries; Solid State Materials; Sports Technology & Entrepreneurship; Steel and Aluminum Alloys: Processing, Structure and Properties)

- NUCL 47000 - Fuel Cell Engineering
- PHYS 54500 - Solid-State Physics
- PHYS 57000 - Selected Topics In Physics  
(Titles: Propulsion Design, Build, Test;&nbsp;Phys Chemistry & Nanomaterials;&nbsp;Fundamental Atomic Force Microscopy; Phys & Material Science of Semiconductor Nanostructures)

## Support Area Electives

*Note that while some courses appear on both the General Education and Support Area lists, such courses cannot satisfy both requirements in your plan of study.*

- AAE 25100 - Introduction To Aerospace Design
- AAE 53500 - Propulsion Design, Build, Test
- ABE 20500 - Computations For Engineering Systems
- BIOL 23000 - Biology Of The Living Cell
- BME 55100 - Tissue Engineering
- CE 20300 - Principles And Practice Of Geomatics
- CE 52400 - Legal Aspects In Engineering Practice
- CE 55900 - Water Quality Modeling
- CE 59700 - Civil Engineering Projects  
- Adv Sensing And Testing
- CHE 20500 - Chemical Engineering Calculations
- CHM 26100 - Organic Chemistry I
- CHM 26200 - Organic Chemistry II
- CHM 26300 - Organic Chemistry Laboratory I
- CHM 26400 - Organic Chemistry Laboratory II
- CHM 26605 - Organic Chemistry II
- CHM 37300 - Physical Chemistry I
- CHM 37400 - Physical Chemistry II
- COM 25200 - Writing For Mass Media
- COM 31400 - Advanced Presentational Speaking
- COM 32500 - Interviewing: Principles And Practice
- COM 45300 - Reporting Of Science News
- COM 49500 - Special Topics In Public Relations And Rhetorical Advocacy  
-History of Marketing the President
- CS 15900 - C Programming
- EAPS 24300 - Mineralogy
- 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
- EEE 30000 - Environmental And Ecological Systems Modeling
- ENGL 30400 - Advanced Composition

- ENGL 39000 - Practicum In Tutoring Writing
  - 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 47200 - Imagine, Model, Make
  - 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
  - MA 45300 - Elements Of Algebra I
  - ME 20000 - Thermodynamics I
  - ME 27400 - Basic Mechanics II
  - ME 49200 - Technology And Values
  - ME 44400 - Computer-Aided Design And Prototyping
  - ME 59700 - Advanced Mechanical Engineering Projects I  
- Artificial Intelligence in Thermal Systems
  - MGMT 30000 level or higher
  - MSE 48900 - Ethics In Engineering Practice
  - MSE 49700 - Selected Topics In Materials Engineering
  - NUCL 20000 - Introduction to Nuclear Engineering
  - NUCL 56300 - Direct Energy Conversion
  - 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
- PSY 27200 - Introduction To Industrial-Organizational Psychology
  - 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

- SYS 40000 - Systems Praxis
- Any Foreign Language any level 20100 or higher

## General Education Requirement (18 credits)

*Note that while some courses appear on both the General Education and Support Area lists, such courses cannot satisfy both requirements in your plan of study.*

- Students must earn a grade of C- or better in courses that satisfy Foundational Learning Outcomes.
- Non-Introductory Courses - Credit Hours: 6.00 (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 Polytechnic Institute.

## 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. Human Cultures: Humanities - Credits: 3.00
2. Human Cultures: Behavior/Social 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.

### A. College of Liberal Arts

#### Introductory

- African American Studies (AAS) 10000-29999
- Art & Design (AD) 10000-29999
- American Studies (AMST) 10000-29999
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity

- Arabic (ARAB) 10000-29999
- Asian American Studies (ASAM) 10000-29999
- Asian Studies (ASIA) 10000-29999
- American Sign Language (ASL) 10000-29999
- CDIS 23900 - Introduction To Disability Studies
- Chinese (CHNS) 10000-29999
- Classics (CLCS) 10000-29999
- Comparative Literature (CMPL) 10000-29999
- Dance (DANC) 10000-29999
- French (FR) 10000-29999
- Film and Video Studies (FVS) 10000-29999
- German (GER) 10000-29999
- Greek (GREK) 10000-29999
- Global Studies Liberal Arts (GSLA) 10000-29999
- Hebrew (HEBR) 10000-29999
- History (HIST) 10000-29999
- Italian (ITAL) 10000-29999
- Japanese (JPNS) 10000-29999
- Jewish Studies (JWST) 10000-29999
- Latin American and Latino Studies (LALS) 10000-29999
- Latin (LATN) 10000-29999
- Languages & Cultures (LC) 10000-29999
- Linguistics (LING) 10000-29999
- Medieval and Renaissance Studies (MARS) 10000-29999
- Music (MUS) 10000-59900
- POL 23000 - Introduction To The Study Of Peace
- Portuguese (PTGS) 10000-29999
- Religious Studies (REL) 10000-29999
- Russian (RUSS) 10000-29999
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- Spanish (SPNS) 10000-29999
- Theatre (THTR) 10000-29999
- Women's Gender, and Sexuality Studies (WGSS) 10000-29999

## Non-Introductory

- African American Studies (AAS) 30000-59999
- Art & Design (AD) 30000-59999
- American Studies (AMST) 30000-59999
- 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
- Arabic (ARAB) 30000-59999
- Asian American Studies (ASAM) 30000-59999
- Asian Studies (ASIA) 30000-59999
- American Sign Language (ASL) 30000-59999
- Chinese (CHNS) 30000-59999
- Classics (CLCS) 30000-59999
- Comparative Literature (CMPL) 30000-59999
- Dance (DANC) 30000-59999
- French (FR) 30000-59999
- Film and Video Studies (FVS) 30000-59999
- German (GER) 30000-59999
- Greek (GREK) 30000-59999
- Global Studies Liberal Arts (GSLA) 30000-59999
- Hebrew (HEBR) 30000-59999
- History (HIST) 30000-59999
- Italian (ITAL) 30000-59999
- Japanese (JPNS) 30000-59999
- Jewish Studies (JWST) 30000-59999
- Latin American and Latino Studies (LALS) 30000-59999
- Latin (LATN) 30000-59999
- Languages & Cultures (LC) 30000-59999
- Linguistics (LING) 30000-59999
- Medieval and Renaissance Studies (MARS) 10000-29999
- Music (MUS) 30000-59999
- Portuguese (PTGS) 30000-59999
- Religious Studies (REL) 30000-59999
- Russian (RUSS) 30000-59999
- SOC 31000 - Race And Ethnicity
- SOC 32400 - Criminology
- SOC 32800 - Criminal Justice
- SOC 33400 - Urban Sociology
- SOC 33800 - Global Social Movements
- SOC 35000 - Sociology Of Family
- SOC 36700 - Religion In America
- SOC 33900 - Sociology Of Global Development
- SOC 34000 - General Social Psychology
- 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 42100 - Juvenile Delinquency
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 45000 - Gender Roles In Modern Society
- SOC 49300 - Interdisciplinary Undergraduate Seminar
- Spanish (SPNS) 30000-59999
- Theatre (THTR) 30000-59999
- Women's Gender, and Sexuality Studies (WGSS) 30000-59999

## B. College of Health and Human Sciences

### Introductory

- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- PSY 12000 - Elementary Psychology
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 22700 - Elements Of Linguistics

### Non-Introductory

- CSR 34200 - Personal Finance
- CSR 39800 - International Special Topics
- HDFS 31100 - Child Development
- HDFS 31200 - Adult Development
- HDFS 32500 - Health And Health Care For Children And Families
- HDFS 33000 - Sexuality And Family Life
- HDFS 34100 - Working With Parents
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 23500 - Child Psychology
- PSY 23900 - The Psychology Of Women
- PSY 24000 - Introduction To Social 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 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 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
- SLHS 30900 - Language Development
- SLHS 40100 - Language And The Brain
- SLHS 41900 - Topics In Audiology And Speech Pathology

## C. College of Agriculture

### Introductory

- AGEC 25000 - Economic Geography Of World Food And Resources
- AGEC 29600 - Selected Topics In Agricultural Economics

### Non-Introductory

- AGEC 34000 - International Economic Development
- AGEC 40600 - Natural Resource And Environmental Economics
- AGEC 41000 - Agricultural Policy
- AGEC 45000 - International Agricultural Trade

## D. Polytechnic Institute - Division of Military Science and Technology

### Introductory

- NS 21400 - Naval Leadership And Management

### Non-Introductory

- AFT 35100 - Leading People And Effective Communication I
- AFT 36100 - Leading People And Effective Communication II
- AFT 47100 - National Security/Commissioning Preparation I
- AFT 48100 - National Security/Commissioning Preparation II
- NS 41300 - Naval Leadership And Ethics

## E. Office of the Provost - Purdue Systems Collaboratory

### Non-Introductory

- SYS 30000 - It's A Complex World - Addressing Global Challenges
- SYS 35000 - Systems Methods
- SYS 40000 - Systems Praxis

## F. School of Management

## Introductory

- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics

## Non-Introductory

- ECON 34000 - Intermediate Microeconomic Theory
- ECON 35200 - Intermediate Macroeconomics
- ECON 36100 - Antitrust And Regulation
- ECON 36500 - History Of Economic Thought
- ECON 37000 - International Trade
- 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 47100 - Behavioral Economics

# 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 mechanical sciences, thermal-fluid sciences, control systems and design.

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 (website)

Mechanical Engineering has approximately 90 faculty members, pursuing research in numerous fields. Are you interested in doing research as an undergrad? Contact a faculty member whose research interests 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](mailto:meundergrad@purdue.edu)

## Graduate School

Interested in Graduate School? [Learn more about the opportunities for you](#)

## 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. Professional Practice

- 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. Professional Development

- 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. Professional Outreach

- 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 student outcomes as outlined below.

#### School of Mechanical Engineering Student Outcomes

The program should provide students with a solid technical foundation for their careers. The graduates of the School of Mechanical Engineering will have demonstrated the following:

1. **Engineering fundamentals:** an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. **Engineering design:** 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. **Communications skills:** an ability to communicate effectively with a range of audiences.
4. **Ethical/Professional responsibilities:** an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. **Teamwork skills:** 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. **Experimental skills:** an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. **Knowledge acquisition:** an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

#### **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 three ME electives that provide additional depth in one or more main stems of the curriculum. Students can further specialize with 9 credit hours of technical/professional electives in engineering, mathematics, natural sciences, select management courses or individualized project courses (ME 49800/ME 49900 ).

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 350 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 an Industry Co-op Certificate and an Extensive Industry Co-op Certificate or an internship program. The Office Professional Practice 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 utilizes the mechanical engineering, 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 by selection for any student meeting the minimum 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 honorpoints (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 40 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. Additional information can be found on the ME Global Programs website.

### **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, 95 to 100 percent of graduating mechanical engineering seniors registered to take the FE exam 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. Learn more about ME Faculty directed research opportunities by visiting the ME Undergraduate Research Opportunities webpage. <https://engineering.purdue.edu/ME/Undergraduate/ResearchOpportunities>

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.

### **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 [MEgradoffice@purdue.edu](mailto:MEgradoffice@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:

1. Providing a seamless transition from the B.S.ME to the M.S.ME program.
2. Participating in a directed project in their area of interest.
3. Stimulating interest in graduate study and research/academic careers.
4. 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 emailed to [MEgradoffice@purdue.edu](mailto:MEgradoffice@purdue.edu).

School of Mechanical Engineering

Mechanical Engineering Major Change (CODO) Requirements

## Degree Requirements

# 128 Credits Required

## Mechanical Engineering Major Requirements (67-68 credits)

### Mechanical Engineering Major Courses (37 credits)

- ME 20000 - Thermodynamics I ♦
- ME 27000 - Basic Mechanics I ♦
- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship ♦
- ME 27400 - Basic Mechanics II ♦
- ME 29000 - Global Engineering Professional Seminar ♦; (satisfies Science, Technology & Society for core)
- ME 30800 - Fluid Mechanics ♦
- ME 30801 - Fluid Mechanics Laboratory ♦
- ME 31500 - Heat And Mass Transfer ♦
- ME 32300 - Mechanics Of Materials ♦
- ME 32301 - Mechanics Of Materials Laboratory ♦
- ME 35400 - Machine Design ♦
- ME 36500 - Measurement And Control Systems I ♦
- ME 37500 - Measurement And Control Systems II ♦
- ME 46300 - Engineering Design ♦

### Other Departmental Required Courses (21-22 credits)

The courses listed below are also included in Major GPA calculation.

- ECE 20001 - Electrical Engineering Fundamentals I ♦
- ECE 20007 - Electrical Engineering Fundamentals I Lab ♦
- 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 ♦ or
- PHYS 27200 - Electric And Magnetic Interactions ♦

### Other Program/Department Requirements (58-68 credits)

### First-Year Engineering Requirements (29-39 credits)

Click here for First-Year Engineering requirements.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## 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.) *These courses are not included in the major GPA calculation*

## Other Departmental Requirements (14 credits)

- MFET 16300 - Graphical Communication And Spatial Analysis ♦  
**Economics Selective** - Credit Hours: 3.00 (*satisfies Human Cultures: Behavioral/Social Science for core*)
- ECON 25100 - Microeconomics or
- ECON 25200 - Macroeconomics  
**Technical Electives (9 credits)** -*see supplemental information for list of courses*
- Technical Elective I - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

## General Education Requirement (15 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
- World & Cultural Affairs Selective - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)  
*See supplemental information for specific requirements and list of courses*

## Supplemental List

Click here for Mechanical Engineering Supplemental Information

## Elective (3 credits)

- Elective - Credit Hours: 3.00 *See supplemental information no count list for information on courses that do not count.*

## Supplemental List

[Click here for Mechanical Engineering Supplemental Information](#)

## Grade Requirements

- MA courses must have C- or above

## GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science degree
- Minimum 2.0 ME Core GPA
- ME Core courses for GPA include: ME 20000, 26300, 27000, 27400, 29000, 30800, 30801, 31500, 32300, 35400, 35401, 36500, 37500, 46300. In addition to the ME core classes, the following courses are also included the ME core GPA: MA 26100, 26200 (26500/26600), 30300; PHYS 24100/27200; ECE 20001, 20007; and MSE 23000.

## Course Requirements and Notes

- Non-Introductory/Upper level courses = 30000+ level course or courses with required pre-requisite in the same department.

## Non-course / Non-credit Requirements

- **Milestone One:** Refer to the College of Engineering Enrollment Management Policy for guaranteed admission to Mechanical Engineering after the completion of the FYE program  
- <https://engineering.purdue.edu/Engr/InfoFor/CurrentStudents/enrollment-policy>.
- **Milestone Two:** At the time of degree completion, milestones of a minimum 2.0 ME Core GPA, minimum 2.0 cumulative GPA, completion of a senior exit survey, and applying for graduation should be met. (2.0 Graduation GPA required for Bachelor of Science degree)

## Pass/No Pass Policy

- All courses to satisfy the Bachelors of Science in Mechanical Engineering degree (128 credit hours) must be taken for a letter grade. Pass/No pass grades will not be accepted to meet degree requirements.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)



- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

## Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

## Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)  
     First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

16 Credits

## Mechanical Engineering Program Requirements

**Milestone One:** After the completion of two semesters, students should have met a 3.2 GPA/EAI or a holistic review for admission to Mechanical Engineering. *See notes section for more information*

### Fall 2nd Year

- ME 20000 - Thermodynamics I ♦
- ME 27000 - Basic Mechanics I ♦
- ME 29000 - Global Engineering Professional Seminar
- MFET 16300 - Graphical Communication And Spatial Analysis ♦
- MA 26100 - Multivariate Calculus
- PHYS 24100 - Electricity And Optics ♦ or
- PHYS 27200 - Electric And Magnetic Interactions ♦

16-17 Credits

### Spring 2nd Year

- ME 26300 - Introduction To Mechanical Engineering Design, Innovation And Entrepreneurship
- ME 27400 - Basic Mechanics II
- MA 26200 - Linear Algebra And Differential Equations
- ECE 20001 - Electrical Engineering Fundamentals I ♦
- ECE 20007 - Electrical Engineering Fundamentals I Lab ♦
- General Education Elective I - Credit Hours: 3.00

17 Credits

### Fall 3rd Year

- ME 30800 - Fluid Mechanics
- ME 32300 - Mechanics Of Materials
- ME 32301 - Mechanics Of Materials Laboratory
- ME 36500 - Measurement And Control Systems I
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- General Education Elective II - Credit Hours: 3.00

16 Credits

## Spring 3rd Year

- ME 30801 - Fluid Mechanics Laboratory
- ME 35400 - Machine Design
- ME 37500 - Measurement And Control Systems II
- Mechanical Engineering Elective I - Credit Hours: 3.00
- Technical Elective I - Credit Hours: 3.00
- General Education Elective III - Credit Hours: 3.00

16 Credits

## Fall 4th Year

- ME 31500 - Heat And Mass Transfer
- MSE 23000 - Structure And Properties Of Materials
- ME Elective II - Credit Hours: 3.00
- Technical Elective II - Credit Hours: 3.00
- World Culture Elective - Credit Hours: 3.00

16 Credits

## Spring 4th Year

**Milestone Two:** *see information in the notes section.*

- ME 46300 - Engineering Design
- Economics Selective - Credit Hours: 3.00
- ME Elective III - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00
- General Education Elective IV - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

18 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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 or
- EEE 35500 - Engineering Environmental Sustainability
- ME 49200 - Technology And Values (Offered alternate spring semesters) or
- PHIL 20700 - Ethics For Technology, Engineering, And Design or
- IDE 49500 - Special Topics In Interdisciplinary Engineering (Title: Engineering Ethics in Interdisciplinary Contexts)
- 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 32300 - Comparative Environmental Policy
- POL 32700 - Global Green Politics (recommended)
- POL 42300 - International Environmental Policy
- POL 42500 - Environmental Law And Politics
- POL 52300 - Environmental Politics And Public Policy

##### Technical (3 credits)

- ABE 58000 - Process Engineering Of Renewable Resources
- CE 35000 - Introduction To Environmental And Ecological Engineering or
- EEE 35000 - Introduction To Environmental And Ecological Engineering
- CE 45600 - Wastewater Treatment Processes or
- EEE 45600 - Wastewater Treatment Processes
- CE 36100 - Transportation Engineering
- CE 45700 - Air Pollution Control And Design
- CEM 48500 - Legal Aspects Of Construction Engineering
- EEE 30000 - Environmental And Ecological Systems Modeling
- EEE 38000 - Environmental Chemodynamics

- ME 51400 - Fundamentals Of Wind Energy
- ME 52900 - Sustainable Energy Options And Analysis
- 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:
  - One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
  - 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.
  - Students interested in the Engineering and Public Policy Minor are encouraged to become active in the **Students for Responsible Science and Engineering (formerly known as Purdue Student Pugwash** organization (<https://boilerlink.purdue.edu/organization/purduestudentpugwash>) Pugwash is an organization started by Bertrand Russell, Albert Einstein, and several other eminent scientists committed to social responsibility in science and technology.

## Disclaimer

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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
- IDE 49500 - Special Topics In Interdisciplinary Engineering (Title: Engineering Ethics in Interdisciplinary Contexts)
- 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 46100 - Constitutional Law I (Recommended)
- POL 46200 - Constitutional Law II

### Technical (3 credits)

- CEM 48500 - Legal Aspects Of Construction Engineering
- ECE 38200 - Feedback System Analysis And Design
- ECE 48300 - Digital Control Systems Analysis And Design
- IE 37000 - Manufacturing Processes I
- ME 35400 - Machine Design
- ME 36300 - Principles And Practices Of Manufacturing Processes
- ME 44400 - Computer-Aided Design And Prototyping
- ME 47500 - Automatic Control Systems
- ME 55300 - Product And Process Design
- ME 55700 - Design For Manufacturability
- 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 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:
  - One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, or
  - 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.
  - **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

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## **Sustainable Engineering Minor**

### **Requirements for the Minor (18 credits)**

#### **Required Courses (12 credits)**

- AGEC 40600 - Natural Resource And Environmental Economics or
- FNR 40600 - Natural Resource And Environmental Economics
- CE 35500 - Engineering Environmental Sustainability or
- EEE 35500 - Engineering Environmental Sustainability
- EEE 53000 - Life Cycle Assessment: Principles And Applications
- POL 32700 - Global Green Politics

#### **Public Policy (3 credits)**

- PHIL 29000 - Environmental Ethics
- POL 22300 - Introduction To Environmental Policy
- POL 32300 - Comparative Environmental Policy
- POL 42300 - International Environmental Policy
- POL 42500 - Environmental Law And Politics
- POL 52300 - Environmental Politics And Public Policy

#### **Technical Courses - Choose One (3 credits)**

##### **Agriculture/Environmental Sustainability**

- AGEC 52500 - Environmental Policy Analysis
- AGEC 52800 - Global Change And The Challenge Of Sustainably Feeding A Growing Planet
- CE 55700 - Air Quality Management
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- EEE 30000 - Environmental And Ecological Systems Modeling
- EEE 38000 - Environmental Chemodynamics

##### **Energy Conversion and Storage**

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

##### **Energy Utilization and Equipment**

- ME 44000 - Automotive Prime Movers: Green Engines And Clean Fuel

## Sustainable Design and Construction

- AD 39700 - Sustainability In The Built Environment
- ME 55300 - Product And Process Design
- CE 59700 - Civil Engineering Projects (Title: Sustainable Building Design Construction)
- CM 51000 - Topics In Environmentally Sustainable Construction, Design And Development

## Sustainable Energy Options

- ABE 58000 - Process Engineering Of Renewable Resources
- CHE 55800 - Rate-Controlled Separation Processes
- CHE 59700 - Special Topics In Chemical Engineering (Title: Advanced Solar Energy Conversion)
- ECE 50616 - Physics And Manufacturing Of Solar Cells
- ME 49601 - Experimental Courses (Title: Climate Change and Renewable Energy)
- ME 51400 - Fundamentals Of Wind Energy
- ME 52900 - Sustainable Energy Options And Analysis

## Notes

- For current pre-requisites for courses, click [here](#).
- \* 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:
  - One equivalent transfer course from another university can be used if it is a core course and comes from an ABET-accredited program, OR
  - 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 Jitesh Panchal (panchal@purdue.edu) in ME to submit your request.

## Disclaimer

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

Consultation with an advisor may result in an altered plan customized for an individual student.



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## Program Information

# Mechanical Engineering Supplemental Information

*Note: Introductory courses have an asterisk (\*), Upper Level Courses do not have an asterisk. Appropriate 500 level courses may also be approved by the student's advisor.*

## Technical Electives (9 credits)

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

## AAE-CE

- 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 36400 - Control System Analysis
- AAE 41200 - Introduction To Computational Fluid Dynamics
- AAE 41800 - Zero-Gravity Flight Experiment
- AAE 42100 - Flight Dynamics And Control
- AAE 43900 - Rocket Propulsion
- AAE 49000 - Special Problems In Aeronautical Engineering (Must have approval from Undergraduate Office prior to registering)
- AAE 51200 - Computational Aerodynamics
- AAE 51400 - Intermediate 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 55500 - Mechanics Of Composite Materials
- 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 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
- BIOL 11000 - Fundamentals Of Biology I (if not taken for Science Selective)
- BIOL 11100 - Fundamentals Of Biology II (if not taken for Science Selective)
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- 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 32800 - Principles Of Physiology
- 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 34000 - Hydraulics
- 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 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 (Must have approval from Undergraduate Office prior to registering)
- 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
- CE 35000 - Introduction To Environmental And Ecological Engineering or
- EEE 35000 - Introduction To Environmental And Ecological Engineering

## CHE-VIP

- CHE 20500 - Chemical Engineering Calculations
- CHE 46100 - Biomedical Engineering
- CHM 25500 - Organic Chemistry For The Life Sciences I
- CHM 25501 - Organic Chemistry For The Life Sciences Laboratory I
- CHM 25600 - Organic Chemistry For The Life Sciences II
- CHM 25601 - Organic Chemistry For The Life Sciences Laboratory II
- CHM 26100 - Organic Chemistry I
- CHM 26200 - Organic Chemistry II
- CHM 26505 - Organic Chemistry I
- CHM 26605 - Organic Chemistry II
- CHM 37300 - Physical Chemistry I
- CHM 37400 - Physical Chemistry II
- CNIT 28000 - Systems Analysis And Design Methods
- CNIT 31500 - Systems Programming
- CNIT 32000 - Policy, Regulation, And Globalization In Information Technology
- CNIT 32500 - Object-Oriented Application Development
- CNIT 37200 - Database Programming
- CNIT 39200 - Enterprise Data Management
- CNIT 48000 - Managing Information Technology Projects
- 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 42100 - Atmospheric Thermodynamics
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 42300 - Atmospheric Dynamics II

- ECE 20200 - Linear Circuit Analysis II
- ECE 20875 - Python For Data Science
- 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 31032 - Power Systems Engineering
- ECE 31100 - Electric And Magnetic Fields
- ECE 32100 - Electromechanical Motion Devices
- ECE 38200 - Feedback System Analysis And Design
- ECE 43200 - Elements Of Power System Engineering
- ECE 48300 - Digital Control Systems Analysis And Design
- 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
- ECON 47100 - Behavioral Economics (May not be used for general education elective credit)
- 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)
- ENGL 49000 - Worksite Internship Practicum (May not be used for general education elective credit)
- ENGR 30500 - Fundamentals Of Innovation Theory And Practice
- ENGR 49001 - Breakthrough Thinking For Complex Challenges
- ENTR 31000 - Marketing And Management For New Ventures
- ENTR 31500 - Business Planning For Social Entrepreneurship
- 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 33000 - Probability And Statistics In Engineering II
- 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 47200 - Imagine, Model, Make
- 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 45900 - Mechanism And Machine Theory
- ME 48900 - Introduction To Finite Element Analysis
- ME 49200 - Technology And Values
- ME 49601 - Experimental Courses
- 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 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 59700 - Advanced Mechanical Engineering Projects I (Must have approval from Undergraduate Office prior to registering for course)
- MET 28400 - Introduction To Industrial Controls
- MET 45100 - Manufacturing Quality Control
- MET 34900 - Stringed Instrument Design And Manufacture
- MFET 34400 - Automated Manufacturing Processes
- MFET 34800 - Introduction To Robot Kinematics
- MFET 37400 - Manufacturing Integration I
- 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 44810 - Technology Strategy
- MGMT 45500 - Legal Background For Business I
- MGMT 45600 - Legal Foundations For Business II
- MGMT 48800 - Data-Driven Decisions In Digital Markets
- MSE 26000 - Thermodynamics Of Materials
- MSE 33000 - Processing And Properties Of Materials
- MSE 33500 - Materials Characterization Laboratory
- MSE 27000 - Atomistic Materials Science
- MSE 37000 - Electrical, Optical, And Magnetic Properties Of Materials
- MSE 38200 - Mechanical Response Of Materials
- NS 21200 - Naval Ships Systems II (Weapons)
- NS 35000 - Naval Ship Systems-Engineering
- 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 - Introduction To Quantum Science
- PHYS 36000 - Quantum Mechanics
- PHYS 42200 - Waves And Oscillations
- PHYS 51500 - Thermal And Statistical Physics
- PHYS 56000 - Stellar Evolution
- 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 Methods
- VIP 37920 - Junior Participation In Vertically Integrated Projects (VIP)
- VIP 37930 - Junior Participation In Vertically Integrated Projects (VIP) Ext
- VIP 47920 - Senior Participation In Vertically Integrated Projects (VIP)
- VIP 47930 - Senior Participation In Vertically Integrated Projects (VIP) Ext

## General Education Requirement (18 credits)

*6-9 credits must be Non-Introductory courses (30000- level and above or courses in the same subject with a pre-req) Appropriate 50000 level courses may also be approved by the student's advisor.*

- 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
- World & Cultural Affairs Selective - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)

## World and Cultural Affairs Elective (3 credits)

### Introductory Courses

- AD 22600 - History Of Art To 1400
- AD 22700 - History Of Art Since 1400
- ARAB 10100 - Standard Arabic Level I
- ARAB 28000 - Arabic Culture
- ASL 10100 - American Sign Language I
- CHNS 10100 - Chinese Level I
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics In Chinese Civilization And Culture
- 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
- FR 10100 - French Level I
- FR 10500 - Accelerated Basic French
- GER 10100 - German Level I
- GREK 10100 - Ancient Greek Level I
- 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 21000 - The Making Of Modern Africa
- HIST 21100 - The Global Field: World Soccer And Global History
- 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 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 10500 - Accelerated Basic Italian
- ITAL 28000 - Italian Culture And Civilization
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- JPNS 10100 - Japanese Level I
- KOR 10100 - Korean Level I
- LATN 10100 - Latin Level I
- LC 23900 - Women Writers In Translation
- PHIL 11400 - Global Moral Issues
- PHIL 23000 - Religions Of The East
- PHIL 23100 - Religions Of The West
- PTGS 10100 - Portuguese Level I
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- RUSS 10100 - Russian Level I
- SPAN 10100 - Spanish Level I
- SPAN 10500 - Accelerated Basic Spanish
- SPAN 23500 - Spanish American Literature In Translation

## Non-Introductory Courses

- 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
- 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 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
- ENGL 38100 - The British Novel
- FR 10200 - French Level II
- FR 20100 - French Level III
- FR 20200 - French Level IV
- FR 20500 - Accelerated Intermediate French
- 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 10200 - German Level II
- GER 10500 - Accelerated Basic German
- GER 20100 - German Level III
- GER 20200 - German Level IV
- GER 20500 - Accelerated Intermediate German
- 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 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GSLA 30100 - Theories Of Global Studies
- HEBR 38000 - Israel And The Modern World: Cinema, Literature, History And Politics
- 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 33805 - History Of Human Rights
- HIST 34000 - Modern China
- 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 - African American History To 1877
- ITAL 30100 - Italian Level V
- ITAL 30200 - Italian Level VI
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- 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
- KOR 30100 - Korean Level V
- KOR 30200 - Korean Level VI
- 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
- 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
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- JPNS 20200 - Japanese Level IV
- KOR 10200 - Korean Level II
- KOR 20100 - Korean Level III
- KOR 20200 - Korean Level IV
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 44400 - Roman Philosophers
- LATN 44500 - Roman Encyclopedists
- LATN 44600 - Roman Historians
- LC 33300 - The Middle Ages On Film
- MUS 37600 - World Music
- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PTGS 10200 - Portuguese Level II
- PTGS 20100 - Portuguese Level III
- RUSS 20100 - Russian Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30100 - Portuguese Level V
- PTGS 30200 - Portuguese Level VI
- RUSS 10200 - Russian Level II
- 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 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 20500 - Accelerated Intermediate Spanish
- 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

## General Education Requirement (12 credits)

### Introductory Courses

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AD 10500 - Design I
- AD 11300 - Basic Drawing
- AD 11700 - Black And White Photography
- AD 11900 - Color 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 23300 - Electronic Media Studio
- AD 23600 - Lighting Fundamentals For Photography
- 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 Imaging
- AD 27000 - Constructed Textiles
- AD 27100 - Dyed Textiles
- AFT 23000 - Team And Leadership Fundamentals I
- AGE 25000 - Economic Geography Of World Food And Resources
- ANTH 10000 - Being Human: Introduction To Anthropology
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20300 - Biological Bases Of Human Social Behavior
- ANTH 20400 - Human Origins
- 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 LGBTQ Studies
- ARAB 10100 - Standard Arabic Level I
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ASL 10100 - American Sign Language I
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 10100 - Chinese Level I
- CHNS 28500 - Chinese Calligraphy
- 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
- COM 10200 - Introduction To Communication Theory
- COM 21700 - Science Writing And Presentation
- DANC 10100 - Modern Dance Technique I
- DANC 10200 - Ballet I
- DANC 10300 - Jazz Dance I
- DANC 20100 - Modern Dance Technique II
- DANC 23000 - Biomechanics Of Dance, Movement and Strength
- DANC 24000 - Dance Composition
- ECON 25100 - Microeconomics
- ECON 25200 - Macroeconomics
- EDPS 23500 - Learning And Motivation
- ENGL 20300 - Introduction To Research For Professional Writers
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 11000 - American Language And Culture For International Students I
- ENGL 11100 - American Language And Culture For International Students II
- ENGL 22700 - Elements Of Linguistics
- ENGL 23000 - Great Narrative Works
- ENGL 23100 - Introduction To Literature
- ENGL 23200 - Thematic Studies In Literature
- ENGL 23400 - Literature And The Environment
- 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 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 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- ENGL 37300 - Science Fiction And Fantasy
- FR 10100 - French Level I
- GER 10100 - German Level I
- GER 23000 - German Literature In Translation
- GER 28000 - German Special Topics
- GREK 10100 - Ancient Greek Level I
- HDFS 20100 - Introduction To Family Processes
- HDFS 21000 - Introduction To Human Development
- HEBR 10100 - Modern Hebrew Level I
- HEBR 12100 - Biblical Hebrew Level I
- HEBR 28400 - Ancient Near Eastern History And Culture

- 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 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 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 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)
- HIST 27800 - Money, Trade, And Power: The History Of Capitalism
- ITAL 10100 - Italian Level I
- ITAL 10500 - Accelerated Basic Italian
- ITAL 23100 - Dante's Divine Comedy
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- JPNS 10100 - Japanese Level I
- JPNS 28000 - Introduction To Modern Japanese Civilization
- JWST 33000 - Introduction To Jewish Studies
- LATN 10100 - Latin Level I
- LALS 25000 - Introduction To Latin American And Latino Studies
- LALS 26000 - U S Latino Culture
- MUS 13200 - Music Theory I
- MUS 25000 - Music Appreciation
- MUS 27000 - Computer Skills In Music
- NS 21300 - Sea Power And Maritime Affairs
- NS 21400 - Naval Leadership And Management
- PHIL 11000 - The Big Questions: Introduction To Philosophy
- PHIL 11005 - I Play, Therefore I Am: Introduction To Philosophy Through Video Games
- 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 20800 - Ethics Of Data Science
- 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 22700 - Science And Religion
- 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
- 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
- PSY 12000 - Elementary Psychology
- PTGS 10100 - Portuguese Level I
- PTGS 10500 - Accelerated Portuguese
- 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
- RUSS 10100 - Russian Level I
- RUSS 11100 - Conversation Supplement To Russian Level I
- SOC 10000 - Introductory Sociology
- SOC 22000 - Social Problems
- SOC 27500 - Sociology Of Aging And The Life Course
- SPAN 10100 - Spanish Level I
- SPAN 11200 - Elementary Spanish Conversation
- SPAN 28000 - Second-Year Spanish: Special Topics
- 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 29000 - Special Topics In Theatre
- TLI 15200 - Business Principles For Organizational Leadership
- TLI 21300 - Project Management
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Variable Topics In Women's, Gender, And Sexuality Studies
- WGSS 28200 - Introduction To LGBTQ Studies

## Non-Introductory Courses

- AAS 30000-level or above
- AD 10600 - Design II
- AD 11400 - Drawing II
- AD 13000 - Interior Design Communication
- 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 24600 - Design Drawing II
- AD 25000 - Interior Design II
- AD 25600 - Presentation Techniques
- AD 30000-level or above
- AFT 35100 - Leading People And Effective Communication I
- AFT 36100 - Leading People And Effective Communication II
- AFT 47100 - National Security/Commissioning Preparation I
- AGECE 22000 - Economics Of Agricultural Markets
- AGECE 34000 - International Economic Development
- AGECE 40600 - Natural Resource And Environmental Economics
- AGECE 41000 - Agricultural Policy
- AGECE 45000 - International Agricultural Trade
- ANTH 30000-level or above
- AMST 32500 - Sports, Technology, And Innovation
- ARAB 10200 - Standard Arabic Level II
- ARAB 11100 - Elementary Standard Arabic Conversation I
- ARAB 11200 - Elementary Standard Arabic Conversation II
- ARAB 12100 - Qur'anic Arabic Level I
- 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 30100 - Standard Arabic Level V
- ARAB 30200 - Standard Arabic Level VI
- ARAB 33400 - North African Literature And Culture
- 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 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics In Chinese Civilization And Culture
- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 30000-level or above
- CLCS 30000-level or above
- COM 20400 - Critical Perspectives On Communication
- COM 21000 - Addressing Public Issues
- 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
- COM 30000-level or above
- CSR 30900 - Leadership Strategies
- CSR 33100 - Consumer Behavior
- CSR 34200 - Personal Finance
- DANC 30000-level or above (Most DANC courses are 1 or 2 credits)
- EAPS 30100 - Oil!
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- ECON 30000-level or above (Except: ECON 45100 & ECON 46100)
- 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
- EDPS 54000 - Gifted, Creative And Talented Children
- ENGL 20500 - Introduction To Creative Writing
- ENGL 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 30000-level or above (Except: ENGL 42100 and ENGL 49000) *ENGL 42000 & ENGL 42100 cannot both be used to satisfy ME Degree Requirements*
- 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
- FR 30000-level or above
- 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: Science And Engineering
- GER 22400 - German Level IV: Business German
- GER 24100 - Introduction To The Study Of German Literature
- GER 30000-level or above
- GREK 10200 - Ancient Greek Level II
- GREK 20100 - Ancient Greek Level III
- GREK 20200 - Ancient Greek Level IV
- GREK 30000-level or above
- HDFS 30000-level or above
- 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 30000-level or above
- HIST 30000-level or above
- HORT 30600 - History Of Horticulture
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- ITAL 20200 - Italian Level IV
- ITAL 20500 - Accelerated Intermediate Italian
- ITAL 21200 - Intermediate Italian Conversation
- ITAL 30000-level or above
- 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
- JPNS 30000-level or above
- JWST 33000 - Introduction To Jewish Studies
- LALS 34700 - Latin American Politics
- LALS 35500 - Political Economy Of Latin America
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- LATN 20200 - Latin Level IV
- LATN 30000-level or above
- MUS 13300 - Music Theory II
- MUS 27000 - Computer Skills In Music
- MUS 30000-level or above
- NS 41300 - Naval Leadership And Ethics
- NS 44000 - Fundamentals Of Maneuver Warfare
- PHIL 30000-level or above
- POL 30000-level or above
- 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
- PSY 30000-level or above
- PTGS 10200 - Portuguese Level II
- PTGS 20100 - Portuguese Level III
- PTGS 20200 - Portuguese Level IV
- PTGS 30000-level or above
- REL 30000-level or above
- 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 30000-level or above
- SOC 30000-level or above
- 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
- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III
- SPAN 20200 - Spanish Level IV
- SPAN 30000-level or above (SPAN 33000 cannot be used as a Gen Ed if used for Written Communication Selective)
- THTR 30000-level or above
- WGSS 30000-level or above
- ENGL 11000 - American Language And Culture For International Students I

## No Count List

- ECON 21000 - Principles Of Economics
- 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 15555 - Quantitative Reasoning
- MA 15800 - Precalculus - Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- PHYS 22000 - General Physics

# School of Nuclear Engineering

## 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 (website)**

## **School of Nuclear Engineering (website)**

## **Contact Information**

### **School of Nuclear Engineering**

Purdue University  
516 Northwestern Ave, WANG 4th floor  
West Lafayette, IN 47907-2017

Student Services Information: Phone: (765) 494-5749  
Academic Programs email: [nuclss@purdue.edu](mailto:nuclss@purdue.edu)

General Contact Information: Phone: (765) 494-5739  
General Information email: [ne@purdue.edu](mailto:ne@purdue.edu)

## **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

Nuclear Engineering Major Change (CODO) Requirements

## Degree Requirements

# 131 Credits Required

## Nuclear Engineering Major Courses (44 credits)

### Required Major Courses (44 credits)

- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I
- NUCL 27300 - Mechanics Of Materials
- NUCL 29800 - Sophomore Seminar (must be taken twice)
- NUCL 30000 - Nuclear Structure And Radiation Interactions
- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
- NUCL 31000 - Introduction To Neutron Physics
- 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 (must be taken twice)
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 41000 - Introduction To Reactor Theory And Applications
- NUCL 44900 - Senior Design Proposal
- NUCL 45000 - Design In Nuclear Engineering
- NUCL 49800 - Senior Seminar (must be taken twice)

#### **Nuclear Technical Selective**

- NUCL 42001 - Radiation Interaction With Materials And Applications (Fall) or
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion (Spring)

## Other Departmental/Program Course Requirements (87-99 credits)

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

## First-Year Engineering Requirements (29-39 credits)

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

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)

- Requirement #8 - Written and Oral Communication (6-7 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

## Other Departmental Requirements (46-48 credits)

- CS 15900 - C Programming ♦ (if not taken in FYE)
  - ME 20000 - Thermodynamics I
  - ME 27000 - Basic Mechanics I
  - ME 27400 - Basic Mechanics II
  - ECE 20001 - Electrical Engineering Fundamentals I
  - **Math and Physics Requirement** (13 credits MA and 3 credits PHYS)
  - MA 26100 - Multivariate Calculus
  - MA 26500 - Linear Algebra
  - MA 26600 - Ordinary Differential Equations
  - MA Elective (30000 level or above) - Credit Hours: 3.00
  - PHYS 24100 - Electricity And Optics ♦ or
  - PHYS 27200 - Electric And Magnetic Interactions ♦
  - **Technical Elective Requirement (12 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
- See Supplemental Information for requirements*

## General Education Requirement (12 credits)

- General Education I (20000 level Human Cultures: Humanities) - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
  - General Education II (30000+ level Human Cultures: Humanities) - Credit Hours: 3.00
  - General Education III (20000 level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/ Social Sciences for core)
  - General Education IV (30000+ level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00
- See Supplemental Information for requirements and notes*

## Supplemental List

- [Click here for Nuclear Engineering Supplemental Information](#)

## Grade Requirements

- All NUCL courses must be completed with a C- or better.

## GPA Requirements

- Students must have a graduation index of 2.0

## Course Requirements and Notes

- A maximum of 6 TR, CR, DC credits can be applied to the General Elective requirements.

## Pass/No Pass Policy

- No courses can be taken as Pass/No Pass.

## Transfer Credit Policy

- A maximum of 6 TR, CR, DC credits can be applied to the General Elective requirements.

## University Requirements

### University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

### Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the Civics Literacy Proficiency [website](#).

Students will complete the Proficiency by passing a test of civic knowledge, and completing one of three paths:

- Attending six approved civics-related events and completing an assessment for each; or
- Completing 12 podcasts created by the Purdue Center for C-SPAN Scholarship and Engagement that use C-SPAN material and completing an assessment for each; or
- Earning a passing grade for one of **these approved courses** (or transferring in approved AP or departmental credit in lieu of taking a course).

### Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.

- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

## Sample First Year Engineering Plan of Study

### Fall 1st Year

- CHM 11500 - General Chemistry (*FYE Requirement #8*) - Credit Hours: 4.00 or (CHM 11100 and CHM 11200)
- 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
- 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)
- First-Year Engineering Selective (*FYE Requirement # 7*) - Credit Hours: 3.00-4.00
- CHM 11600 - General Chemistry or
- CS 15900 - C Programming or
- BIOL 11000 - Fundamentals Of Biology I or
- BIOL 11100 - Fundamentals Of Biology II

### 16 Credits

## Sample Nuclear Engineering Sample Plan of Study

### Fall 2nd Year



- CS 15900 - C Programming ♦ (if not taken in FYE)
- MA 26100 - Multivariate Calculus
- ME 20000 - Thermodynamics I
- ME 27000 - Basic Mechanics I
- NUCL 20000 - Introduction to Nuclear Engineering
- NUCL 29800 - Sophomore Seminar
- General Education I (20000 level Human Cultures: Humanities) - Credit Hours: 3.00

## 16-19 Credits

### Spring 2nd Year

- MA 26600 - Ordinary Differential Equations
- ME 27400 - Basic Mechanics II
- 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 Education II (30000 + level Human Cultures: Humanities) - 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 I - Credit Hours: 3.00

## 18 Credits

### Spring 3rd Year

- ECE 20001 - Electrical Engineering Fundamentals I
- NUCL 31000 - Introduction To Neutron Physics
- NUCL 35100 - Nuclear Thermal-Hydraulics II
- NUCL 35500 - Nuclear Thermohydraulics Laboratory
- NUCL 39800 - Junior Seminar
- Technical Elective II - Credit Hours: 3.00
- Technical Elective III - Credit Hours: 3.00

## 18 Credits

## Fall 4th Year

- NUCL 30500 - Nuclear Engineering Undergraduate Laboratory II
- NUCL 40200 - Engineering Of Nuclear Power Systems
- NUCL 41000 - Introduction To Reactor Theory And Applications
- NUCL 44900 - Senior Design Proposal
- NUCL 49800 - Senior Seminar

### **Nuclear Technical Selective**

- NUCL 42001 - Radiation Interaction With Materials And Applications or
- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion (Spring)
- General Education III (20000-level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00

15 Credits

## Spring 4th Year

- NUCL 45000 - Design In Nuclear Engineering
- Technical Elective IV - Credit Hours: 3.00
- NUCL 49800 - Senior Seminar
- MA Elective (30000 level or above) - Credit Hours: 3.00
- General Education IV (30000+ level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00

12 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

### Additional Requirements (6 credits)

At least 6 credits of courses selected from the following:

- NUCL 20500 - Nuclear Engineering Undergraduate Laboratory I
- NUCL 30000 - 59999. This includes independent study (NUCL 49700) and special topics courses (NUCL X9700).

## 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.
- 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.

Consultation with an advisor may result in an altered plan customized for an individual student.

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

## Program Information

## Nuclear Engineering Supplemental Information

# General Education Requirements (12 credits)

## Human Cultures: Humanities (6 credits)

- General Education I (20000 level Human Cultures: Humanities) - Credit Hours: 3.00
- General Education II (30000 + or Upper level Human Cultures: Humanities) - Credit Hours: 3.00

Subject Areas may include: AAS, AD, AMST, ARAB, ASAM, ASEC, ASL, CHNS, CLCS, CMPL, DANC, EDST, ENGL, FR, GER, GREK, GS, HEBR, HIST, ITAL, JPNS, JWST, LATN, LC, MUS, PHIL, PTGS, REL, RUSS, SPAN, THTR, WGSS

## Human Cultures: Behavioral/ Social Sciences (6 credits)

- General Education III (20000 level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/ Social Sciences for core)
- General Education IV (30000+ or Upper level Human Cultures: Behavioral/ Social Sciences) - Credit Hours: 3.00

Subject Areas may include: AGECE, AGR, AMST, ANTH, CLCS, COM, ECON, EDCI, EDPS, EDST, ENGL, HDFS, HTM, LC, LING, POL, PSY, SCLA, SLHS, SOC, WGSS

### Notes:

- See University Core Curriculum (UCC) list for specific courses
- Non-Introductory/Upper level courses = 30000+ level course or courses with required pre-requisite in the same department.
- One of the courses should also fulfill Science, Technology & Society (STS) requirement for core if not met in FYE.
- A maximum of 6 credits from TR, CR, DC can be applied to the General Elective requirements.
- If a student chooses to take courses from the same subject area/prefix for the general education requirement, 4 unique courses must be taken to fulfill the 12 credits.

# Technical Electives (12 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

### Any course listed below

*For 30000- level engineering courses or any other course not listed, please consult your Academic Advisor. Some courses may require a petition to the Undergraduate Committee (UGC) and are not guaranteed to be approved.*

### Any 40000+ level Engineering Course

- AAE 40000-59999
- ABE 40000-59999
- BME 40000-59999
- CE 40000-59999
- CEM 40000-59999

- CHE 40000-59999
- ECE 40000-59999
- EEE 40000-59999
- ENE 40000-59999
- ENGR 40000-59999
- IE 40000-59999
- ME 40000-59999
- MSE 40000-59999
- NUCL 40000-59999

Any 50000+ level HSCI, MA or PHYS Course

- HSCI 50000-59999
- MA 50000-59999
- PHYS 50000-59999
- AAE 55300 - Elasticity In Aerospace Engineering
- ASTR 56300 - Astroparticle Physics
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 39800 - Introduction To Civil Engineering Systems Design
- CS 44800 - Introduction To Relational Database Systems
- ECE 30411 - Electromagnetics I
- ECE 30412 - Electromagnetics II
- HSCI 41500 - Introduction To Nuclear And Radiological Source Security
- HSCI 51400 - Radiation Instrumentation Laboratory
- HSCI 52000 - Risk Assessment In Environmental Health
- HSCI 53400 - Applied Health Physics
- HSCI 54000 - Radiation Biology
- HSCI 57000 - Introduction To Medical Diagnostic Imaging
- IE 57700 - Human Factors In Engineering
- MA 45300 - Elements Of Algebra I
- MA 51000 - Vector Calculus
- MA 51900 - Introduction To Probability
- MA 52000 - Boundary Value Problems Of Differential Equations
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- ME 43000 - Power Engineering
- ME 43300 - Principles Of Turbomachinery
- 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 50200 - Defects In Solids
- MSE 50800 - Phase Transformations In Solids
- MSE 53100 - Quantitative Analysis Of Microstructure
- 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

- NUCL 46000 - Introduction To Controlled Thermonuclear Fusion
- 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 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
- PHYS 32200 - Intermediate Optics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 34200 - Modern Physics
- PHYS 41000 - Physical Mechanics I Honors
- PHYS 41600 - Thermal And Statistical Physics Honors
- PHYS 42200 - Waves And Oscillations
- PHYS 43000 - Electricity And Magnetism I Honors
- PHYS 58000 - Computational Physics