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.

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 1:

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

Option II:

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

AND

- 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 **web-site.**

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.