Senior Year
First Semester
3 - GEOL (CE) 4820 Groundwater and Contaminant Transport
3 - GEOL 4910 Research Synthesis I
6 - Hydrogeology Requirement
12
Second Semester
3 - EES 4010 Environmental Engineering
4 - GEOL 4050 Surficial Geology
4 - GEOL 4090 Environmental and Exploration Geophysics
3 - GEOL 4920 Research Synthesis II
12
121 Total Semester Hours

See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement.

Total of 12 credits selected from GE 2010, 2080, CH 2010, 2230, EM 2020, ENGR 1020, 1410, ENST 2000, GEOL 2700, 2750, MATH 2060, 2080, PES 2020, one course from CPSC 1110, 1150 or 1610, or any 3000-4000-level course in ASTR, BCHM (except 4910, 4920, 4930), IE (except 4900, 5010, 5010, 5010, 4910, 4900), BIOE (except 4900, 5110, 5110, 4600, 4690, 4900, 4910), BIOL (except 5940, 4910, 4920, 4930, 4940, 4950), CE (except 3530, 3570, 3880, 3880, 1970, 1970, 4970, 4980, 4990, 4990, 4990), CH (except 3990, 4430, 4440, 4450, 4900), CHE (except 3000, 3950, 3990, 3990, 4440, 4450, 4970, 4990), ECE (except 3000, 3990, 4910, 4920, 4990), EES (except 3000, 3010, 4000, 4500, 4510, 4920, 4950), ETEN, GEOL, IE (except 3000, 4000, 4000, 4040, 4060, MATH (except 3820, 3990, 4810, 4820, 4910, 4920, 4990), ME (except 3000, 3990, 4000, 4020, 4150, 4900), MIEC (except 3940, 4910, 4920, 4930, 4940, 4950, 4990), MIEC (except 3000, 3990, 4010, 4910). Credit for GEOL 4110 is limited to a maximum of three credits. Courses may not be used to satisfy any other requirement.

MATH 2060 may be substituted.

INDUSTRIAL ENGINEERING

Bachelor of Science
Industrial engineers design, install, and improve the complex systems that provide goods and services vital to our society and economy. These systems place unique demands for breadth of preparation on industrial engineers. The Industrial Engineering baccalaureate program prepares graduates to: (1) design, develop, implement, and improve integrated systems that include people, materials, information, equipment, and energy using appropriate analytical, computational and experimental practices; (2) apply information technologies to the practice of industrial engineering; (3) conduct themselves in a professional and ethical manner; and (4) work and communicate effectively with colleagues at every level in the organization.

The traditional arenas for the practice of industrial engineering are the manufacturing facilities of industry; however, many practicing industrial engineers are employed in non-manufacturing institutions such as hospitals, financial institutions, consulting firms and government agencies. In addition to numerous employment opportunities in professional practice, industrial engineering graduates may further their formal education. The Department of Industrial Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees.

The Department of Industrial Engineering also offers a combined Bachelor’s/Master’s plan in which accepted students may count up to 12 hours of graduate credit (approved 6000- and 8000-level courses) toward both a bachelor’s and a master’s degree, with the stipulation that a minimum of 150 credit hours must be earned. To be eligible, the student must have senior standing and a minimum overall grade-point average of 3.4. Most students completing the joint BS/MS program in IE can only double count nine units. Details of the suggested curriculum and program information are available from the Industrial Engineering Department.

Freshman Year
First Semester
4 - CH 1010 General Chemistry
3 - ENGL 1030 Composition and Rhetoric
2 - ENGR 1020 Engineering Disciplines and Skills
4 - MATH 1060 Calculus of One Variable
3 - Arts and Humanities Requirement or Social Science Requirement
16
Second Semester
3 - ENGR 1410 Programming and Problem Solving
4 - MATH 1080 Calculus of One Variable
3 - PHYS 1220 Physics with Calculus
3 - Arts and Humanities Requirement or Social Science Requirement
4 - Lab Science Requirement
17
Sophomore Year
First Semester
1 - IE 3140 Seminar in Industrial Engineering
2 - ENGR 2080 Engineering Graphics and Machine Design
2 - ENGR 2090 Intro to Engineering/Computer Graphics
2 - ENGR 2100 Computer-Aided Design and Engineering Graphics
4 - MATH 2060 Calculus of Several Variables
3 - MATH 3110 Linear Algebra
3 - PHYS 2210 Physics with Calculus II
1 - PHYS 2230 Physics Lab. II
16
Second Semester
3 - IE 2100 Design and Analysis of Work Systems
4 - IE 3010 Systems Design I
1 - IE 3140 Seminar in Industrial Engineering
3 - IE 3600 Industrial Apps of Prob/Stat I
3 - IE 3800 Deterministic Operations Research
3 - MSE 2100 Introduction to Materials Science
17
Junior Year
First Semester
3 - IE 3610 Industrial Apps of Prob/Stat II
3 - IE 3810 Probabilistic Operations Research
3 - IE 3840 Engineering Economic Analysis
3 - IE 4400 Decision Support Systems in IE
3 - Arts and Humanities Requirement or Social Science Requirement
15
Second Semester
3 - IE 3860 Production Planning and Control
3 - IE 4610 Quality Engineering
3 - IE 4650 Facilities Planning and Design
4 - IE 4820 Systems Modeling
3 - Oral Communication Requirement
16
Senior Year
First Semester
3 - IE 4880 Human Factors Engineering
3 - Electrical Engineering Requirement
3 - Ethics and Professional Practice Requirement
6 - Technical Requirement
15
Second Semester
4 - IE 4670 Systems Design II
3 - Management Requirement
3 - Arts and Humanities Requirement or Social Science Requirement
3 - Technical Requirement
13
125 Total Semester Hours

This course must be passed with a C or better either to transfer into IE from General Engineering or to satisfy later course prerequisites.

ENGR 1050 and 1060 may be substituted for ENGR 1020
See General Education Requirements. Six of these credit hours must also satisfy the Cross-Cultural Awareness and Science and Technology in Society Requirements.

ENGR 1070, 1080 and 1090 may be substituted for ENGR 1410
Select from BIOL 1030/1050, 1040/1060, 1100, 1220/1200, 1250/1200, CH 1020, GEOL 1010/1030
ME 2050 may be substituted.

PHYS 1240 may be substituted.

See General Education Requirements. COMM 1500 is recommended.

Select either ECE 2020 and 2110; or ECE 2070 and 2080.
Select from PHIL 1030, 3440, 3450, 3460, LAW 1220
Select from IE 4000, 4020, 4030, 4040, 4030, 4460, 4520, 4560, 4570, 4600, 4620, 4630, 4810, 4850, 4860, 4870, 4990, 4910
Select from ACCT 210, 2120, 2300, ELE 4000, MGT 2010, 3070, 4110, MKT 4210, ML 3010

Notes:
1. No student may exceed three attempts, including a W and academic forgiveness (with the exception of a withdrawal from the University), to successfully complete any IE course (with a grade of D or better). Moreover, a third attempt is only granted by a written request to the department chair before the deadline to add a course in a subsequent term.
2. Industrial Engineering students who have a cumulative grade-point average or cumulative engineering grade-point average (EGPA) below 2.0 are on probation and will have restricted enrollment in classes. Students whose cumulative grade-point average is below 2.0 are subject to the regulations stipulated under the University’s Academic Eligibility Policy. Students on probation for an EGPA below 2.0 who fail to recover (i.e. raise their EGPA above 2.0) in the first regular semester (fall or spring) will not be allowed to register for industrial engineering classes. After one year, such students may petition the Industrial Engineering Department for continued enrollment. An advising policy for students on probation is available from the Industrial Engineering Department.