



ADVISING WORKSHEET: INDUSTRIAL ENGINEERING

GENERAL NOTES

- A minimum of 123 credits are required for graduation.
 - Credits earned for COM 100 and MAT 100 do not count toward the 123 credits required for graduation; however, COM 100 students may petition for elective credit.
 - Where appropriate, courses required for the major can be used to satisfy General Education requirements. However, the credits earned for these courses are applied to either Gen Ed requirements or the major, not both.
 - Paths of Knowledge coursework may count towards major or minor requirements, but may not fulfill Mid-Level Liberal Arts Exploration requirement.
 - Students are expected to follow the catalog requirements for General Education, the major, and additional requirements.
 - A minor or second major within the areas listed under Paths of Knowledge automatically fulfills that area of the Gen Ed requirements.
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MAJOR NOTES

The Engineering majors (electrical, mechanical, and industrial) are fundamentally sound in math and science and application ready (i.e., ready and able to apply their knowledge to solve cutting-edge issues). This is accomplished by extensive fundamental math and science training and hands-on training in cutting-edge industry and labs. The key features of the engineering majors include a common core of engineering curriculum that allows exposure to all disciplines before selecting a major, four semesters of interdisciplinary design courses, and co-op or internship experience in an advanced industry or faculty applied research lab inclusive of professional mentoring.

General Education (54-56 credits)

| First Year Curriculum: Enduring Questions | Credits Required | Course | Term | Grade | Credits Earned |
|--|------------------|-------------------|------|-------|----------------|
| SEARCH Seminar-Enduring Questions or Honor Search-Enduring Questions | 3 | SRH 101 / HNR 160 | | | |
| COM 101: Composition & Research (Must earn a C or higher) | 3 | COM 101 | | | |
| THE 105: Foundations of Theology | 3 | THE 105 | | | |
| PHI 105: Introduction to Philosophy | 3 | PHI 105 | | | |

| Mid-Level Liberal Arts Exploration | Credits Required | Course | Term | Grade | Credits Earned |
|--|------------------|-------------------|------|-------|----------------|
| EXPLORING THE NATURAL WORLD (6-8 credits) | | | | | |
| Lab Science (Biology, Chemistry, Physics) | 3-4 | MET w/CHE 104/110 | | | |
| Math (Other than MAT 100) | 3-4 | MET w/MAT 230 | | | |
| INDIVIDUALS & COMMUNITIES (6 credits) | | | | | |
| History or Political Science | 3 | | | | |
| PSY 101, HIS, POS, SOC, SSC, or ECON | 3 | | | | |
| CULTURE & LANGUAGE (9 credits) | | | | | |
| Communication (Not COM 100 or 101) | 3 | | | | |
| World Language – 2 courses in sequence | 3 | | | | |
| | 3 | | | | |
| CREATIVE EXPRESSIONS (6 credits) | | | | | |
| Literature (ENG) | 3 | | | | |
| Art or Music or Theatre | 3 | MET with THR 244 | | | |

| Ethical Leaders and Followers | Credits Required | Course | Term | Grade | Credits Earned |
|--|------------------|----------------|------|-------|----------------|
| Theology or Philosophy (200-400 level) | 3 | | | | |
| Theology or Philosophy (Ethics/Morality @ 200 level) | 3 | MET w/ PHI 208 | | | |

| Paths of Knowledge – Choose 1 Path | | PoK may count towards minor or Related Requirements, but not Mid-Level Arts Exploration requirements. | | | |
|--|--|--|------|-------|----------------|
| <p>_____ PATH 1:</p> <p>Interdisciplinary Study (IS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level from the interdisciplinary minors of Women & Gender Studies, Digital Media, Community & Environmental Sustainability, Community Engagement, Cultural Studies, Leadership Studies or Pre-Law.</p> | <p>_____ PATH 2:</p> <p>Multi-disciplinary Study (MS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level employing multiple disciplinary perspectives to explore the Enduring Questions in one of the following themes: Cultural & Global Studies, Imagination & Creativity, Peace & Conflict, Poverty & Wealth or Sustainability, Science & Technology.</p> | <p>_____ PATH 3:</p> <p>In-depth Disciplinary Study (DS) Three courses at the 200-400 level in one Liberal Arts discipline other than one's major, guided by common ideas and methods of inquiry. Students choose from Art, Biology, Chemistry, Communication, Computer Science, Economics, English, History, Mathematics, Music, Philosophy, Political Science, Psychology, Sociology, Theology, Theatre or World Languages. This path may be used to give students a firm foundation in a discipline supporting their chosen major, or to pursue an interest in one of the Liberal Arts disciplines.</p> | | | |
| Course (See Catalog for lists of approved courses for each area.) PATH 3-MATH | | Area or Discipline | Term | Grade | Credits Earned |
| MET IN RELATED REQUIREMENTS with MAT | | | | | |
| MET IN RELATED REQUIREMENTS with MAT | | | | | |
| MET IN RELATED REQUIREMENTS with MAT | | | | | |

BS ENGINEERING (98-103 credits)

| REQUIRED ENGINEERING COR COURSES (14 credits) | | | | |
|--|----------------|------|-------|---------|
| Course | Pre-Requisites | Term | Grade | Credits |
| EGR 107: Engineering Lab Safety | | | | 1 |
| EGR 110: Engineering Design I | | | | 1 |
| EGR 206: Mechatronics | EE 200 | | | 3 |
| EGR 210: Engineering Design II | EGR 110 | | | 1 |
| EGR 480: Senior Capstone Design I | EGR 210 | | | 2 |
| EGR 481: Senior Capstone Design II | EGR 480 | | | 2 |
| EE 200: Circuits I w/Lab | MAT 230 | | | 4 |

| ELECTRICAL ENGINEERING: (29 credits) | | | | |
|---|----------------|------|-------|---------|
| Course | Pre-Requisite | Term | Grade | Credits |
| IE 201: Work Systems/Ops Mgmt | | | | 4 |
| IE 211: Modern Manufacturing w/Lab | | | | 4 |
| IE 302: Production & Inventory Control | | | | 3 |
| IE 310: Stochastic Models/Operations | MAT 345 | | | 3 |
| IE 321: Industrial Automation & Robotics | | | | 3 |
| IE 331: Production Engineering | | | | 3 |
| IE 402: Product Quality | IE 310 | | | 3 |
| IE 410: Optimization | | | | 3 |
| IE 421: Systems Engineering Design | | | | 3 |

| RELATED REQUIREMENTS (47 credits) | | | | |
|---|---|------|-------|---------|
| Course | Pre-Requisite | Term | Grade | Credits |
| CHE 104: General Chemistry I | | | | 3 |
| CHE 110: General Chemistry I Lab | | | | 1 |
| CS 155: Intro Object-Oriented Prog | Satisfactory score on Math Placement test | | | 3 |
| MAT 230: Calculus I | MAT 131 or satisfactory score on Math Placement test | | | 4 |
| MAT 231: Calculus II | MAT 230 | | | 4 |
| MAT 322: Differential Equations | MAT 331 | | | 3 |
| MAT 345: Applied Probability & Linear Methods | MAT 230, CS 155 | | | 4 |
| PHI 208: Ethics & Technology | | | | 3 |
| PSY 200: Physics I w/Lab | MAT 230 | | | 4 |
| PSY 201: Physics II w/Lab | PHY 200 | | | 4 |
| PHY 202: Statics | PHY 200, MAT 230 | | | 3 |
| PHY 304: Modern Physics | PHY 201 | | | 4 |
| THR 244: Computer Assisted Design | | | | 3 |

| Industrial Engineering Majors: | | | | |
|---|----------------|------|-------|---------|
| Course | Pre-Requisite | Term | Grade | Credits |
| MAT 232: Calculus III | MAT 231 | | | 4 |
| MAJOR ELECTIVES: (9 credits)- select from EGR 311, EE 351 (may be repeated with different topics), any IE or ME 300-400 level course | | | | |
| Course | Pre-Requisite | Term | Grade | Credits |
| | | | | |
| | | | | |

*** Please be advised to double check the 22-23 Course Catalog to ensure that you meet all prerequisite expectations for all required and related classes for this major.***

EIGHT SEMESTER PLAN

Below is a recommended sequence of courses for this major. Courses highlighted in **RED** identifies the courses that must be taken and passed during the suggested semester in order for a student to stay on track toward completing the degree program within 4 years. Please meet with your academic advisor prior to registering for each new semester.

| Semester 1 | Credits | Semester 2 | Credits |
|---|--|--|---------|
| SRH 101: Search Seminar or HNR 160: Honors Search | 3 | MAT 231: Calculus II | 4 |
| EGR 107: Engineering Lab Safety | 1 | EGR 110: Engineering Design I | 1 |
| MAT 230: Calculus I | 4 | THR 244: Computer-Assisted Design | 3 |
| PHY 200: Physics I with Lab | 4 | PHY 201: Physics II with Lab | 4 |
| COM 101: Composition & Research | 3 | CS 155: Intro to Object-Oriented Prog. | 3 |
| TOTAL | 15 | TOTAL | 16 |
| Semester 3 | Credits | Semester 4 | Credits |
| MAT 322: Differential Equations | 3 | EGR 206: Mechatronics | 3 |
| PHY 202: Statics | 3 | EGR 210: Engineering Design II | 1 |
| CHE 104: General Chemistry | 3 | IE 201: Work Systems & Operations Mgmt | 4 |
| CHE 110: General Chemistry I w/Lab | 1 | IE 211: Modern Manufacturing w/Lab | 4 |
| THE 105 or PHI 105 | 3 | MAT 209: Probability and Statistics | 3 |
| EE 200: Circuits I with Lab | 4 | THE 105 or PHI 105 | 3 |
| TOTAL | 17 | TOTAL | 18 |
| Semester 5 | Credits | Semester 6 | Credits |
| IE 310: Stochastic Models in Operations | 3 | IE 331: Production Engineering | 3 |
| IE 302: Production and Inventory Control | 3 | IE 321: Industrial Automation and Robotics | 3 |
| PHY 304: Modern Physics w/Lab | 4 | Major Elective | 3 |
| MAT 345: Applied Probability & Linear Methods | 4 | Gen Ed SEARCH: PHI 208 | 3 |
| Gen Ed SEARCH (World Language) | 3 | Gen Ed SEARCH (World Language) | 3 |
| TOTAL | 17 | TOTAL | 15 |
| Semester 7 | Credits | Semester 8 | Credits |
| IE 402: Product Quality | 3 | IE 421: Systems Engineering Design | 3 |
| IE 410: Optimization | 3 | EGR: 481: Capstone Design II | 2 |
| EGR 480: Capstone Design I | 2 | Major Elective | 3 |
| Gen Ed SEARCH | 3 | Major Elective | 3 |
| Gen Ed SEARCH | 3 | Gen Ed SEARCH | 3 |
| Gen Ed SEARCH | 3 | Gen Ed SEARCH | 3 |
| TOTAL | 17 | TOTAL | 17 |
| ADDITIONAL GRADUATION REQUIREMENTS | RESIDENCY REQUIREMENTS | GRADUATION CREDITS EARNED | |
| ___ SRH 101/HNR 160: FIRST YEAR SEMINAR | ___ Minimum of 123 non-remedial credits earned | Liberal Arts Core credits earned | |
| ___ HUMAN DIVERSITY | ___ 45 of last 60 credits | Major and Related Area credits earned | |
| ___ COMMUNITY SERVICE HOURS | ___ Minimum of 12 Alvernia credits in the major | Elective and/or Minor credits earned | |
| ___ OVERALL GPA = 2.0 or higher | ___ Minimum of 9 Alvernia credits in the minor (if applicable) | SUBTOTAL | |
| ___ GPA IN MAJOR = 2.0 or higher | | SUBTRACT CREDITS EARNED FOR MAT 100, and if applicable COM 100 | |
| ___ 2.5 in Writing Courses | | TOTAL GRADUATION CREDITS | |
| ___ SENIOR CAPSTONE: met with EGR 480/481 | | | |
| ___ WRITING ENHANCED COURSE | | | |

Academic Policy on Eligibility for Participation of May Commencement Ceremony

The academic policy, which the Registrar follows, is: A student who has 6 or less credits remaining to complete the degree may participate in the May Commencement Ceremony. **Application Deadlines:** August Graduation - December 1; December Graduation - March 1; May Graduation - October 1. Any questions, please call the Registrar's Office.