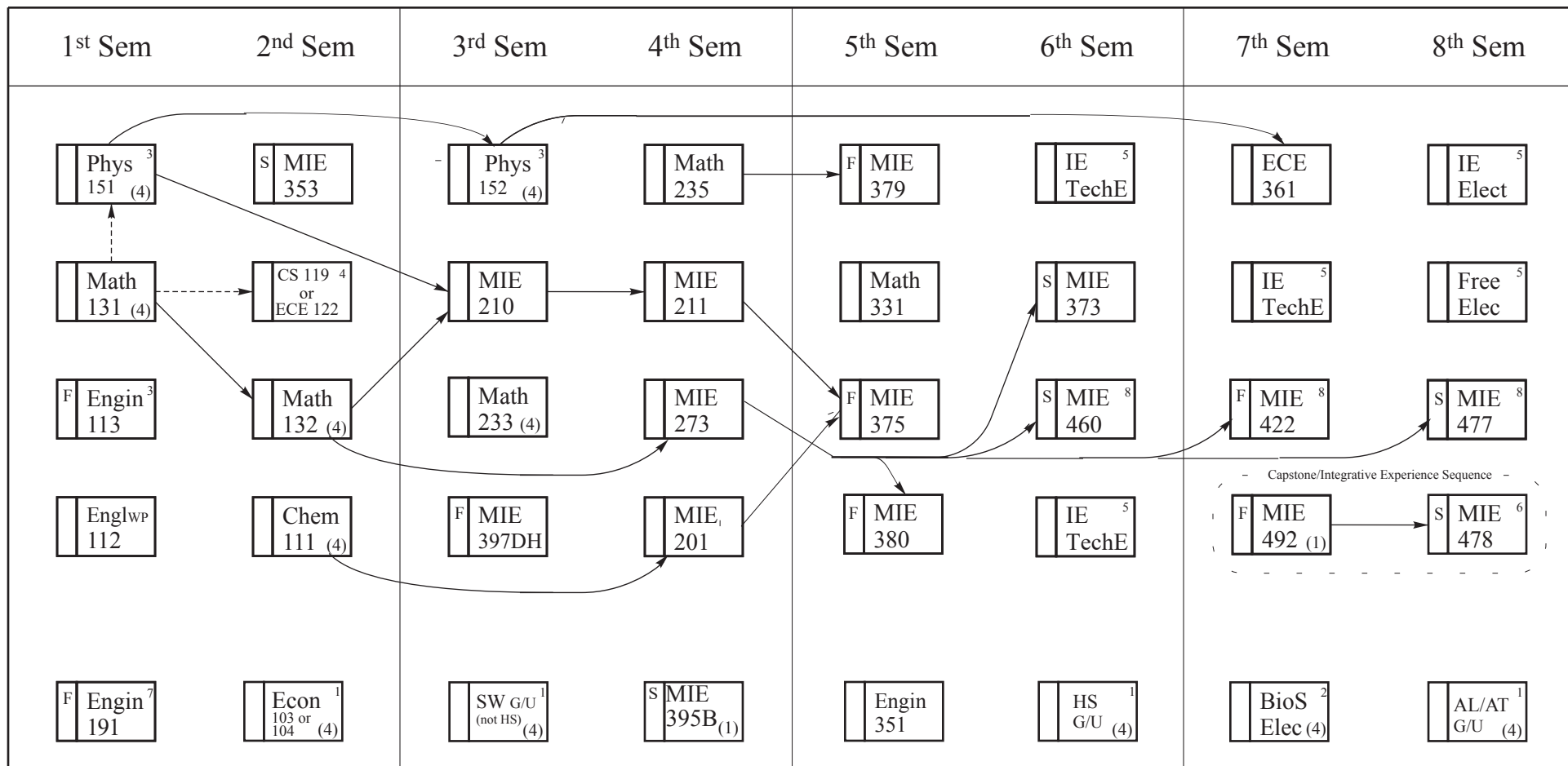


Mechanical and Industrial Engineering Department

INDUSTRIAL ENGINEERING CURRICULUM



If only offered fall (F) or spring (S)

F MIE a Note on reverse
401 (4) Credits, if other than 3

→ Prerequisite course
- - - - - → Prerequisite that may be taken concurrently

Scheduling Note: Courses offered vary from year to year and from semester to semester. The sequence of courses shown is only a sample. Students will plan their individual programs after consulting the University Registration Materials and the MIE Department Registration Notes.

Graduation Clearance: Both University and Department Cumulative GPAs of 2.0 are required for graduation.

Prerequisites: Not all prerequisites are shown. Consult SPIRE Course Descriptions for complete listings. Students must satisfy prerequisites or obtain instructor permission, irrespective of SPIRE enrollment.

Total Credits: 124
Revised 3/23/2022

IE Degree Program, Flowchart Notes

NOTE: The flowchart is not the official student record. It should be used in conjunction with your university transcript and your academic requirements report both found on SPIRE.

Notes: 1. **Social World Requirement:** 4 courses, each 4 credits (one from each group)

- 1) AL or AT 3) HS
- 2) SB 4) AL, AT, SB, SI or I

Social World Diversity Requirement

One course with a United States diversity designation (DU) and one with a global diversity designation (DG) are required. These need not and are typically not separate from courses used to satisfy the Social World Requirement.

- 2. **Biological Science Requirement:** Any 4 cr course having the Biological Science (BS) designation.
- 3. **Alternative Courses:** An approved alternative exists to the "standard" course shown.
- 4. **CS 119/ECE 122:** Both CS 119 and ECE 122 introduce students to computer programming using Python. MIE 124 is oriented more toward engineering problems and can be used to satisfy this requirement. Students who plan to take an upper level CS course, perhaps as an engineering elective, or plan to minor in CS or math should consider taking CS 121 as it will also satisfy the programming requirement.
- 5. **IE Program Electives:** The IE curriculum includes 3 Technical Electives (TechE), an IE Elective, and a Free Elective. Students are encouraged to use elective courses to delve deeper into one of the application areas or disciplines related to the core IE curriculum. Advisors can help students in selecting appropriate groups of courses or "tracks." Generally, electives are offered in only one semester and some are not offered every year. Scheduling of and enrollment in courses outside of the MIE Department is at the discretion of the outside department. The free elective can be any course at the university except one that is a prerequisite for a required course, e.g. Math 104, or which overlaps significantly with a required course, e.g. Math 127. *See the registration notes for a listing of IE TechEs and examples of approved non-MIE TechEs.*
- 6. **Capstone Prerequisites:** All required IE courses are co-requisites for MIE 478, i.e., all required IE courses must be taken prior to or concurrently with MIE 478. Permission of the instructor is required in any case in which all prerequisites are not met.
- 7. **First Year Seminar:** This course is not a graduation requirement and is not included in the total credits.
- 8. **Track Courses:** IE majors should elect a track of interest as early as possible so that students pursuing summer internships or co-ops have some background for the industry positions they are seeking. As such, MIE 422, 460, and 477 can be taken in the junior year to prepare for these industry positions. All IE students should discuss the selection of tracks and electives with their advisor.

IE COURSE TITLES AND NUMBERS

ENGIN 113	Introduction to Mechanical & Industrial Engineering
ENGIN 191	First Year Seminar
MIE 201	Introduction to Materials Science
MIE 210	Statics
MIE 211	Strength of Materials
MIE 230	Thermodynamics
MIE 273	Probability and Statistics for Engineers
MIE 353	Engineering Economic Decision Making
MIE 373	Introduction to Simulation Methods
MIE 375	Manufacturing Processes
MIE 379	Deterministic Operations Research
MIE 380	Stochastic Operations Research
MIE 395B	Seminar, Engineering Professionalism (IE)
MIE 397DH	Data Visualization
MIE 422	Statistical Quality Control
MIE 460	Human Factors Engineering
MIE 477	Production Planning & Control
MIE 478	Capstone Design (IE)
MIE 492	Seminar

non-IE COURSE TITLES AND NUMBERS

Chem 111	Chemistry I
CS 119	Introduction to Programming (Python)
ECE 361	Introduction to Electrical Engineering
ENGIN 351	Junior Year Technical Writing
EngWP 112	College Writing
Math 131	Calculus I
Math 132	Calculus II
Math 233	Calculus III (Vector Calculus)
Math 235	Linear Algebra
Math 331	Calculus IV (Differential Equations)
Phys 151	Physics I (Forces, Energy & Work)
Phys 152	Physics II (Electricity & Magnetism)