Mechanical Engineering Majors,
Industrial Engineering Majors
ENGIN Students planning to be ME or IE Majors

Registration Notes for Fall 2017

Summary of Steps (see below for details):

1. Schedule an advising appointment
2. Print your ARR from SPIRE & complete a CSF (available outside ELab 208F)
3. Meet with your advisor (March 20 – April 11)
4. Deliver signed CSF to Dorothy Adams, ELab 208F
5. Enroll in classes once your enrollment appointment opens

Required Registration Process

See SPIRE to determine when your enrollment appointment opens. Students must meet with an advisor before they can enroll as advising holds will need to be lifted prior to class registration. ENGIN-ME, ENGIN-IE, and IE students meet with their advisor as shown on SPIRE. ME Students must meet with a Graduate Advising Assistant (sign-up for an appointment here: https://booknow.appointment-plus.com/50jr68yx/, drop down to “BSME Pre-Registration Advising”). Post graduate students should meet with Dr. Bernd F. Schliemann. ME Students are also strongly encouraged to meet with their assigned faculty advisors to discuss career plans, graduate schooling, research plans, and any other topic that may complement their undergraduate careers. After advising, bring a copy of the signed Course Selection Form (CSF) to Dorothy Adams before your enrollment appointment opens.

Academic Requirements Report

This report is used for graduation clearance. Each student should check their Academic Requirements Report (ARR) on SPIRE and see Dorothy Adams (ELab 208F) if there are any errors or omissions, particularly regarding transfer credits, AP credits, elective courses, and GenEd courses. Please bring a printed copy (PDF) of your ARR from SPIRE to your advising meeting.

Enrollment Issues

Register as soon as your SPIRE enrollment appointment opens if you need a specific class or section. Many required courses are offered both semesters. Students who cannot enroll in a specific class this semester will be accommodated in the next semester. Students may register for either MIE 302 or MIE 313; students who register for both will be dropped from one of the courses without prior notice. If a specific course is essential and you are not able to enroll for any reason, please see Dorothy Adams immediately.

MIE Seniors

Graduating seniors should check their SPIRE Graduation Date and Academic Requirements Report to verify that all degree requirements will be satisfied.
Admission to the Major

To be admitted to the ME or IE major, a student must complete, with a grade of C or better, the following courses: Math 131 and Math 132, Engin 110 or 111 or 112 or 113; CHEM-ENG 120 or CE-ENGIN 121 or CS 121 or M&I-ENG 124; Chem 111; and Physics 151. A cumulative grade point average of 2.0 is also required.

Curriculum Planning

Advisors offer assistance, but they do not plan the student’s course of study. The curriculum worksheets are only guides as not all required courses are offered every semester. Please inform Dorothy Adams now about any problems that arise from anticipated course offerings.

Core Courses

For curriculum planning purposes, the following courses are offered during the semesters indicated (F = fall, S = spring, Su = summer):

- ECE 361 – Electrical Engineering: S
- ENGIN 113 – Intro. to M&I Engineering: F
- ENGIN 351 – Technical Writing: F, S, Su
- MIE 124 – Computational Approaches: S
- MIE 201 – Intro. to Material Science: F, S
- MIE 210 – Statics: F, S, Su
- MIE 211 – Strength of Materials: F (CEE 241), S
- MIE 230 – Thermodynamics: F, S
- MIE 302 – ME Lab I: F, S
- MIE 310 – Dynamics: S
- MIE 340 – Fluid Mechanics: F
- MIE 353 – Engineering Economics: F
- MIE 354 – Heat Transfer: S
- MIE 373 – Intro. to Simulation Methods: S
- MIE 375 – Manufacturing Processes: F
- MIE 379 – Deterministic Operations Research: F
- MIE 380 – Stochastic Operations Research: S
- MIE 395A – Professional Seminar: F
- MIE 397b – System Dynamics
- MIE 402 – ME Lab II: F, S
- MIE 413 – Design of Mechanical Assemblies: F, S
- MIE 415 – ME Senior Design: F, S
- MIE 422 – Statistical Quality Control: S
- MIE 460 – Human Factors: S
- MIE 477 – Production Operations Management: F
- MIE 478 – IE Capstone Design: S
- MIE 492 – IE Seminar: F
- MIE 491E – Entrepreneurship, Leadership, Teaching (ELITE) seminar (1 cr)

Undergraduate Teaching Assistant Credit

You are invited to contact faculty anytime about future UTA opportunities. Students can satisfy the MIE or IE Elective requirement by enrolling in the UTA Practicum, MIE 398T, which is a prerequisite for the Entrepreneurship, Leadership, Teaching (ELITE) seminar (MIE 491E, 1 cr). The ELITE seminar is only offered during the spring and pays a stipend to participating students. Complete the MIE 398T form (available outside of Elab 208F) and submit it to Dorothy Adams; if you are interested in MIE 491E, find an instructor who needs a UTA prior to contacting Dorothy to get on the waitlist.

Independent Study

It is often possible to arrange an independent study which can be used as an ME or IE TechE. Students are encouraged to approach faculty to discuss topics of mutual interest. Note that only one TechE can be satisfied with an independent study (MIE 396 or MIE 496); see Professor Steve de Bruyn Kops for independent study course approval.
Study Abroad

Many MIE students have and are studying abroad. The spring semester of your sophomore or fall semester of your senior years are the best suited for this opportunity. Please see April H. Stroud (https://booknow.appointment-plus.com/50jr68yx/, drop down to “International Programs and Exchanges”) if you are interested.

Departmental Honors Course Offerings

The following courses are offered to facilitate students meeting their honors requirements:

1. IE students: MIE 379H & MIE 460H
2. ME students: MIE 313H & MIE 413H

Students can request exceptions to these offerings through the MIE Honors Program Director.

Summer or Winter Classes

If you are interested in UMass Amherst summer or winter classes, request an enrollment appointment through SPIRE. If you are interested in taking a class at any other campus, you must request pre-approval from the Registrar’s Office for general education courses and through Dean Greg Brown in the College of Engineering Office of Student Affairs for technical courses (math, science, or engineering) –the grades you earn elsewhere will not impact your GPA and you must earn a “C-“ or above for you to earn any transfer credit. Classes offered this summer are ENGIN 351, MIE 210, MIE 273, and MIE 573 (technical elective).

Transfer Credit

If you have any problems with transfer credit, email your name, student ID, and course information (course description and syllabus preferred) to Dr. Schliemann at bfschlie@umass.edu.

Full-time Student Status

Undergraduate students must take a minimum of 12 credits per semester to retain full-time student status. If you fall below this minimum, you are not eligible for campus housing, risk any financial aid you have been awarded, and may lose any UMass health coverage; see the appropriate campus office if you have any questions.

Fundamentals of Engineering Exam

Although not required for most ME and IE jobs, students should consider taking the FE exam during their last semester while undergraduate course knowledge is still familiar. The 8 hour exam consists of 180 multiple choice questions. After passing the FE exam, one must obtain at least 4 years of experience (accepted by specific state licensing board) and then take the Principles and Practice (PE) exam. See http://ncees.org/engineering/ for more information.

Industrial Engineering Courses

As courses are not offered every semester, students should consider taking the IE required courses for which they qualify. Students should also consider using Free or MIE Elective courses to satisfy prerequisites for higher level IE Tech Electives. All IE students should discuss the selection of IE Electives with their advisors; see Dr. Bernd F. Schliemann for approval of non MIE courses.
Mechanical Engineering Technical Electives

Students should consider elective courses whenever they qualify. Postponing electives until your final semester may severely restrict your freedom to choose electives. Since an array of technical elective are offered within the department, students should determine the area of ME that most interests them as early as possible in their undergraduate careers. To assist in that endeavor, the following themes are offered with potential TechEs to support your interests (including the upcoming semesters they will be offered):

1. **Advanced Fluids:**
   a. MIE 440 – Aerospace Fluid Mechanics (ok junior year): S18, S19
   b. MIE 497c – Propulsion Systems Performance, Analysis & Design (ok junior year): S18
   c. MIE 597NM – Introduction to Numerical Methods (ok junior year): F17, F18
   d. MIE 497G – Internal Combustion Engines: F17

2. **Biomedical:**
   a. MIE 497T – Orthopaedic Tissue - Biomechanics I: F17
   b. MIE 497SM – Skeletal Tissue - Biomechanics II (497t is prerequisite): S18
   c. MIE 597CM – Connections in Medicine, Biology, & Engineering (ok junior year): S18, S19
   d. MIE 597MB – Molecular, Cellular, & Tissues Biomechanics (ok junior year): F17, F18

3. **Dynamic Systems and Control:**
   a. MIE 444 – ME Automatic Controls: F17, F18
   b. MIE 497G – Mechatronics: S18, S19
   c. MIE 485 – Vibrations: S18
   d. MIE 597NM – Introduction to Numerical Methods (ok junior year): F17, F18

4. **Energy Conversion:**
   a. MIE 497c – Propulsion Systems Performance, Analysis & Design (ok junior year): S18
   b. MIE 497G – Internal Combustion Engines: F17
   c. MIE 551 – Thermal Environment Engineering: S18
   d. MIE 570 – Solar & Direct Energy Conversion: S18, S19
   e. MIE 573 – Engineering Windpower Systems: F17, F18

5. **General:**
   a. MIE 497F – Theory, Modeling Principles, & Applications in FEA: S19
   b. MIE 497M – Extended Senior Design Project (prior to MIE 415): F17, F18
   c. MIE 497s – Automotive Engineering (Supermileage Vehicle, limited to 25): all
   d. MIE 597e – Computational Material Science: S18, S19
   e. MIE 597Mc - Advanced Materials Characterization: S18
   f. MIE 597MM – Metamaterials: F17
   g. MIE 597NM – Introduction to Numerical Methods (ok junior year): F17, F18

6. **Manufacturing:**
   a. MIE 422 – Statistical Quality Control: S18, S19
   b. MIE 477 – Production Planning & Control: F17, F18
   c. MIE 544 – Layout & Design: S18, S19
   d. MIE 597AM – Additive Manufacturing: S18, S19

7. **Materials** (certificate program):
a. MIE 571/572 – Physical & Chemical Processing of Materials with Lab
b. MIE 579 – Advanced Materials Engineering
c. MIE 590c/MIE 590f – Mechanical Behavior of Materials with Lab
d. MIE 590L – Materials Science & Engineering Project

Note that these electives will be capped at 40 students and some are only offered every 2 years. Other technical courses in Engineering, Math, CS, Kinesiology, OIM and science departments may be acceptable as TechEs; however, only one TechE can be satisfied with a non-MIE course; see Dr. Bernd F. Schliemann for approval.