MIE COMPETENCE. INTEGRITY. COMMITMENT.

3/6/2018
BFS

Fall 2018 Registration Notes

Summary of Steps (see below for details):

1. *Schedule an advising appointment*
2. *Review your ARR & complete a CSF (available outside Elab 208F)*
3. *Meet with your academic advisor (March 19 – April 6)*
4. *Deliver signed CSF to Dorothy Adams, ELab 208F*
5. *Enroll in classes once your enrollment appointment opens (beginning 4/2)*

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 Graduate Student Advisors Gina Georgadarellis in *Elab 111* if your last name starts with A-K or Duy Nguyen in *Elab 312* if your last name starts with L-Z. You should be receiving an e-mail from your respective advisor asking you to sign-up for an appointment; if you do not, please contact them after spring break. Post graduate students should meet with Dr. Bernd F. Schliemann. *ME Students are also strongly encouraged to meet with their assigned faculty advisors for professional advising 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. *NOTE: if you fail to meet with an advisor during the dates in 3 above, you are not guaranteed a seat in the classes you need.*

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, Engineering 110 or 111 or 112 or 113; CHEM-ENG 120 or CE-ENGIN 121 or CS 121 or M&I-ENG 124; Chemistry 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.*

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.

Wait Lists

In order to keep the enrollment process fair for all MIE students, we have implemented SPIRE waitlists in lieu of asking students to contact instructors. Please join the waitlist on SPIRE for any MIE classes that are full; waitlists represent only 10% of the class capacity. If the waitlist is also full, please check back or find an alternative class.

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 and either MIE 402 or MIE 413; students who register for both will be dropped from one of the courses without prior notice. In addition, both MIE 313 and 413 enrollment will be capped in the fall semester so you are encouraged to take these courses in the spring if possible. *If a specific course is essential and you are not able to enroll for any reason, please see Dorothy Adams immediately.*

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: F
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 273 – Probability & Statistics: F, S
MIE 302 – ME Lab I: F, S
MIE 310 – Dynamics: S
MIE 313 – Design of Mech. Components: F, 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 or S
MIE 397B – System Dynamics: F, S
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

Undergraduate Teaching Assistant Credit

You are invited to contact faculty anytime about future UTA opportunities; probably the best time is when you are getting ready for your advising appointment. Students can satisfy the MIE or IE Elective requirement by enrolling in the UTA Practicum, MIE 398T. *Complete the MIE 398T form (available outside of Elab 208F) and submit it to Dorothy Adams.* Students serving as UTAs for a second or greater time will not receive academic credit, but will be paid.

Independent Study

It is often possible to arrange an independent study which can be used as an ME or IE Tech Electives. Students are encouraged to approach faculty to discuss topics of mutual interest. Note that only one Tech Electives can be satisfied with an independent study (MIE 396 or MIE 496); *see Dr. Bernd F. Schliemann for independent study course approval.* Honors students may not complete an independent study to meet a technical elective requirement.

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 an International Programs Office advisor if you are interested.

Summer Internships

Internships do not replace a class. You can earn pass/fail credit for an internship, but you do not need any additional credits to graduate (since you will exceed the 120 minimum regardless). To earn P/F credit, you will need to pay for a summer course) to be awarded the credit.

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, MIE 375, 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. Bernd F. 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.

Departmental Honors

The requirements for departmental honors are:

1. MIE H313 & MIE H413 (for ME students) and MIE H379, MIE 397DH, & MIE H460 (for IE students) each with their parent course (e.g., MIE 313); students must complete two of these courses and can substitute ENGIN 351H for one of them.
2. Honors Thesis or Project. MIE 499Y Honors Research with MIE 499T Thesis or MIE 499P Project

Students can request exceptions to the offerings in 1 above through the MIE Honors Program Director. In addition, MIE 499Y and 499T/P each satisfy a ME Tech Electives.

MIE Seniors

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

Industrial Engineering Technical Electives

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 (or email a course description to bfschlie@umass.edu) for* approval *of electives not listed below.*

1. A Level 1 IE Tech Elective can be any MIE course at or above the 200 level except MIE 398T or 520. One Independent study, e.g., MIE 496, can be used if neither MIE 499Y or 499T are used. Other acceptable courses are: CEE 310, 370, 410, 411,418, 450, 470; ECE 242, 597C, 597D, 597SE; CS 187, 250, 311; Math 455, 537, 551, 552; Statistics 516; OIM 413.
2. Acceptable Level 2 IE Tech Electives include any Level 1 Tech Elective course; Math 300, 456; Economics 309; Resource Economics 462, 471, 472; Information Operations 397F, Psychology 391DM, Kinesiology 460, 560; SCH-MGMT 597LG, EMM Capstone Courses.
3. Acceptable IE Elective courses include any Level 1 or 2 IE Tech Elective courses; MIE 398T; Chemical Engineering 290A; Chemistry 112; Resource Economics 202, 312, 313; Psychology 304, 307, 330, 380; Kinesiology 270, 272; Management 341; Math 412, 425; EMM core courses: Accounting 221, Finance 301, Management 301, Marketing 301.
4. 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).

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 Tech Electives to support your interests (including the upcoming semesters they will be offered):

1. Advanced Fluids:
    a. MIE 440 – Aerospace Fluid Mechanics (ok junior year): F18, S20
    b. MIE 497C – Propulsion Systems Performance, Analysis & Design (ok junior year): S19, S20
    c. MIE 597NM – Introduction to Numerical Methods (ok junior year): F18, F19
    d. MIE 497G – Internal Combustion Engines: F18, F19
2. Biomedical:
    a. MIE 497R – Mechatronics; S20
    b. MIE 597CM – Connections in Medicine, Biology, & Engineering (ok junior year): S19, S20
    c. MIE 597MB – Molecular, Cellular, & Tissues Biomechanics (ok junior year): F18, F19
3. Design:
    a. MIE 497F – Theory, Modeling Principles, & Applications in FEA: S19, S20
    b. MIE 497M – Extended Senior Design Project (prior to MIE 415): F18, F19
    c. MIE 497S – Automotive Engineering (Supermileage Vehicle, limited to 25): all
    d. MIE 562 – Power Systems Design: S19
4. Dynamic Systems and Control:
    a. MIE 444 – ME Automatic Controls: F18, F19
    b. MIE 497R – Mechatronics; S20
    c. MIE 597NM – Introduction to Numerical Methods (ok junior year): F18, F19
5. Energy Conversion:
    a. MIE 497C – Propulsion Systems Performance, Analysis & Design (ok junior year): S19, S20
    b. MIE 497G – Internal Combustion Engines: F18, F19
    c. MIE 562 – Power Systems Design: S19
    d. MIE 570 – Solar & Direct Energy Conversion: S19, S20
    e. MIE 573 – Engineering Windpower Systems: F18, F19
    f. MIE 597DW – Dynamics of Waves: F18
    g. MIE 597YY – Ocean Renewable Energy: S19
6. Manufacturing:
    a. MIE 422 – Statistical Quality Control: S18, S19
    b. MIE 477 – Production Planning & Control: F18, F19
    c. MIE 497J – Additive Manufacturing: S19
    d. MIE 544 – Layout & Design: S19, S20
    e. MIE 597IM – Intelligent Manufacturing: F18, F19
7. Materials (certificate program):
    a. MIE 571/572 – Physical & Chemical Processing of Materials with Project
    b. MIE 579 – Advanced Materials Engineering (or other 500-level advanced materials course)
    c. ChE 590C – Mechanical Behavior of Materials
    d. ChE 573 – Materials Science & Engineering Project
8. Materials (non-certificate):
    a. MIE 597E – Computational Material Science: S19, S20
    b. MIE 597MM – Metamaterials: F19

Note that these electives will be capped at 40 students and some are only offered every 2 years. Students accepted onto the super mileage team will be registered for MIE 497S in the fall and spring; it is a three credit course that will count as the MIE Elective in the fall (or your first semester) and as a ME Tech Electives in the spring (or your second semester). Other technical courses in Engineering, Math, CS, Kinesiology, OIM and science departments may be acceptable as Tech Electives; however, only one Tech Electives can be satisfied with a non-MIE course; *see Dr. Bernd F. Schliemann (or email your name, student ID, major, and a course description to bfschlie@umass.edu) for approval*. Examples of previously approved non-MIE Tech Electives are: Astronomy 337, Chemical Engineering 589, Civil Engineering 597A, Computer Science 187, 335, 403; Kinesiology 460, 530; Math 425, 532H, 551, 552; and ECO 697SB.