Materials Science & Engineering

Undergraduate Handbook

Last revised: 06/15/12
THE DEPARTMENT

The Department of Materials Science & Engineering (MSE) welcomes you to the College of Engineering and the University of Florida. The undergraduate students of the department are among its strongest assets. On average half of them make the Dean’s List each semester. They are a diverse group coming from high schools and community colleges that appreciate the numerous career paths that MSE offers.

Since all commercial products rely on the properties and performance of materials, our undergraduates are in demand with a variety of companies and industries such as aerospace, automotive, electronics, textiles, shipbuilding, petro-chemical, glass manufacturing, and biomedical. Earning your degree in MSE and getting a job won’t be your only option. Our students may choose from the following programs:

Bachelor’s (BS) or combined BS/Master’s (BS/MS) degrees:

- BS/MS MSE/MSE: [http://www.mse.ufl.edu/degrees/undergraduate/combined-bsms/mse.html](http://www.mse.ufl.edu/degrees/undergraduate/combined-bsms/mse.html)
- BS/MS MSE/BME: [http://www.bme.ufl.edu/academic/combined](http://www.bme.ufl.edu/academic/combined)

Graduate Programs –

- Ph.D.: [http://www.mse.ufl.edu/degrees/graduate/phd.html](http://www.mse.ufl.edu/degrees/graduate/phd.html)

Joint Programs with the Medical and Law Schools

- M.D./Ph.D.: [http://www.mse.ufl.edu/degrees/graduate/jdms.html](http://www.mse.ufl.edu/degrees/graduate/jdms.html)
- MS/JD: [http://www.mse.ufl.edu/degrees/graduate/jdms.html](http://www.mse.ufl.edu/degrees/graduate/jdms.html)

In addition, we offer a Minor Program in MSE for students outside the respective department. The College of Engineering also offers a Sales Engineering Minor; the Industrial Systems Engineering Department administers this minor. Information about minors can be found in the undergraduate catalog: [https://catalog.ufl.edu/ugrad/current/Pages/minors.aspx](https://catalog.ufl.edu/ugrad/current/Pages/minors.aspx)

Rhines Hall, the home of MSE, underwent a $10 million renovation in 1999 to bring our facilities and labs into the twenty-first century. Unique in its accessibility to industry, The Major Analytical Instrumentation Center (MAIC) was established to offer opportunities and industrial scientists working together with state-of-the-art equipment like an atomic surface microscope.

The Academic Services Office, 108 Rhines Hall, is an essential resource for every student in the department. The staff is available via walk-in for academic advisement, registration, and dissemination of information regarding scholarships, internships, co-ops, research
opportunities, and jobs. For more information about MSE please contact us at (352) 846-3312, advising@mse.ufl.edu, or visit our website: www.mse.ufl.edu.

DEPARTMENT ADMINISTRATION

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ACADEMIC ADVISEMENT

- Progression to Graduation – Every student is expected to make satisfactory progress toward graduation each semester. Students who are not making satisfactory progress may be required to seek advisement, mandated to meet specific conditions in order to continue in the major, or denied further registration in the department.
  - Universal Tracking: Student in terms 1-5 are required to meet the critical-tracking criteria for their major. For more information about universal tracking: https://catalog.ufl.edu/ugrad/current/advising/info/academic-progress.aspx
  - Additional Progression Standards: All students must meet these standards
    - Maintain a minimum 2.0 cumulative, upper-division and departmental gpa
    - Probation – students who fail to maintain a 2.0 or above cumulative, upper-division or departmental gpa are placed on college probation. College probation information may be found at: https://catalog.ufl.edu/ugrad/current/engineering/school_pages/policies.aspx Students may only be on probation two semesters; otherwise the University will dismiss the student for one term: https://catalog.ufl.edu/ugrad/current/regulations/info/progress.aspx
  - Registration/Advising - each semester, the College of Engineering (COE) places a registration hold on the COE students.
    - Check ISIS for Registration Preparation (Prep) Information: https://www.isis.ufl.edu/cgi-bin/nirvana?MDASTRAN=RSI-RGHOLD
    - The department notifies students of the mechanisms for having the registration hold removed and advising for the subsequent terms.
  - Advanced Registration -
    - Late March for summer/fall
• Late October for spring

• Schedule of courses -  http://www.registrar.ufl.edu/soc/

• Petitions process – Academic Petitions are made through ASO. Many exceptions or substitutions for coursework or other academic requirements may need to be petitioned.
  • Petitions are reviewed by the MSE Petitions Committee (MSE PC) and results are emailed back to the students.
  • Petitions are due to ASO on Fridays.
  • MSE PC strives to get answer back within one week.
  • The petitions form can be found on the Student-Forms webpage:  
    http://www.mse.ufl.edu/students/forms.html

• Dean’s list requirements –  https://catalog.ufl.edu/ugrad/current/Pages/deans-list.aspx

• Summer hours –  https://catalog.ufl.edu/ugrad/current/regulations/info/graduation.aspx#summer

• Graduating Cum laude, Magna cum laude or Summa cum laude
  • Cum laude - Students with a 3.3 or above upper-division (UD) gpa will be conferred cum laude.
  • Magna cum laude and Summa cum laude – Students with a 3.5-3.79 UD gpa ( magna) and 3.8 or above UD gpa (Summa) and complete the appropriate paperwork for the designation will be conferred as magna or summa cum laude – Please refer to the honors and college websites for information on graduating with these designations.
    • Honors –  http://www.honors.ufl.edu/Thesis.aspx
    • College –  http://www.eng.ufl.edu/students/students/current-students/forms

• Graduation Preparation – at the end of your junior year complete a preliminary certification for graduation with ASO and plan for either senior research or IPPD
  • Senior research – EMA4913 and EMA4914 – research with a faculty member in the department. Any MSE senior student performing senior research with a faculty member outside the department is required to have an MSE faculty member as co-advisor, who will be responsible for assigning grades for EMA 4913/4914.
    • To register for EMA4913, the student must bring the signed contract for to ASO by the end of drop/add for the fall term. The form can be located at:  http://www.mse.ufl.edu/static/forms/ema4913-14.pdf
  • IPPD – Integrated Product and Process Design Program – Students must apply to the program at www.ippd.ufl.edu. Students accepted for IPPD will be notified via email.

• Internships – Co-ops – Internships and Co-ops are encouraged while student pursue their Bachelor’s degree. Students should fill out the online application and submit their offer letter to ASO by the appropriate deadline for the term they wish to enroll:
  • Online application:  http://www.mse.ufl.edu/request-for-internship
  • Deadlines for application
    • April 1 – summer internship or co-op
- July 1 – fall internship or co-op
- November 1 – spring internship or co-op
  - Registering for EMA4949 is optional

- Graduation Application – Within the first two weeks (two days for summer) of your last term you should apply for graduation online through ISIS [https://www.isis.ufl.edu/cgi-bin/nirvana?MDASTRAN=RSI-EAG2PP](https://www.isis.ufl.edu/cgi-bin/nirvana?MDASTRAN=RSI-EAG2PP)
- Exit Interview & Graduation Checklist – By the last day of classes for the term you are graduating, complete online Exit Interview, [http://www.mse.ufl.edu/students/forms/128.html](http://www.mse.ufl.edu/students/forms/128.html), and submit the graduation checklist, [http://www.mse.ufl.edu/images/stories/pdf/gradcertchecklist.pdf](http://www.mse.ufl.edu/images/stories/pdf/gradcertchecklist.pdf), to ASO.
- Dean of Student’s Office (DSO) – [http://www.dso.ufl.edu](http://www.dso.ufl.edu)
- Counseling Center – [http://www.dso.ufl.edu/supportservices/campuscounseling.php](http://www.dso.ufl.edu/supportservices/campuscounseling.php) Resources available are:
  - University Counseling and Wellness Center, 3190 Radio Road, 392-1575
  - Student Health Care Center, Infirmary Building, 392-1161
  - Career Resource Center, First Floor Reitz Union, 392-1601
- Disability Resource Center (DRC) – [http://www.dso.ufl.edu/drc](http://www.dso.ufl.edu/drc)
- Academic Integrity – All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. [http://www.dso.ufl.edu/studenthandbook/studentrights.php](http://www.dso.ufl.edu/studenthandbook/studentrights.php)
- Student Judicial Affairs – Student Judicial Affairs is dedicated to encouraging responsible community conduct, educating the UF and Gainesville community, and implementing disciplinary action in situations or were violations of the Student Conduct Code have occurred. [http://www.dso.ufl.edu/sccr/](http://www.dso.ufl.edu/sccr/)
- Gator Allies – Gator Allies is a group of trained personnel who offer assistance to LGBTQA students. They are identified with the logo below on their doors.

- Software use – All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. [http://www.it.ufl.edu/policies/copyright.html](http://www.it.ufl.edu/policies/copyright.html)
# B. S. Degree Requirements for MSE as of Fall 2012

**GEN ED – 18 HRS**
- ENC3254 – Writing for Engineers 3
- HUM2305 – What is the Good Life 3
- Humanities/Social Science (H/S)\(^1\) 12
- Diversity/International (D/N)\(^2\) (Gordon Rule)\(^3\)

**Current Specialties – 13 HRS**
- EMA4041 – Advanced Ceramics Lab 1 1
- EMA4144 – Physical Ceramics 1 3
- EMA4145 – Physical Ceramics 2 3
- EMA4645 – Process Ceramic Materials 3
- EMA electives\(^1\) 6
- EMA4120 – Physical Metallurgy 1 3
- EMA4224 – Physical Metallurgy 2 3
- EMA4623C – Process Metallurgy 4
- EMA electives\(^3\) 3

**ENG PREPROF – 31 HRS**
- CHM2045 – General Chemistry 1 3
- or CHM2095 – Engineering Chemistry 1 1
- CHM2046 – General Chemistry 2 3
- or CHM2096 – Engineering Chemistry 2 1
- CHM2046L – Gen Chemistry Lab 2 1
- MAC2311 – Calculus 1 4
- MAC2312 – Calculus 2 4
- MAC2313 – Calculus 3 4
- MAP2302 – Differential Equations 3
- PHY2048 – Physics w/Calculus 1 3
- PHY2048L – Physics Lab 1 1
- PHY2049 – Physics w/Calculus 2 3
- PHY2049L – Physics Lab 2 1

**ENG CORE – 23 HRS**
- COP2271\(^4\) – Computer Programming 2
- EEB3003 – Elements of Electrical Engineering 3
- EIN4354\(^5\) – Engineering Economy 3
- EGM2511 – Statics 3
- EGM3520 – Mechanics of Materials 3
- EMA3010 – Materials 3
- EMA3800 – Error Analysis/Optim Methods 3
- EMA3011\(^6\) – Fundamental Principles Materials 3

**METALS**
- EMA4121 – Interfacial Eng 3
- EMA4125 – Transport Phenomena in Materials 3
- EMA4223 – Mechanical Behavior of Materials 3
- EMA4314 – Energetics & Kinetics in Materials 3
- EMA4324 – Stability of Materials 3
- EMA4714 – Materials Selection 3
- EMA4913 – Research 1 2
- EMA4914 – Research 2 3

**POLYMERIC-BIOMATERIALS**
- EMA4061 – Biomaterials: Structure & Property 3
- EMA4062 – Biopolymers: Manu/Stab/Biocomp 3
- EMA4161C – Polymer Physics 4
- EMA4666 – Polymer Processing 3

**Total Hours Required**

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<th>Hours</th>
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<td>GEN ED – 18 HRS</td>
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<td>Current Specialties – 13 HRS</td>
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<td>Total hours</td>
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1. Total of 15 hours including HUM2305; 9 of one and 6 of the other
2. Should be taken with 15 hours of H/S courses
3. Total of 24,000 words; 6,000 should be satisfied with ENC3254
4. See advisor for options
5. MAN3025, Principles of Management, or MAR3023, Principles of Marketing, options for EIN4354
6. CHM2200 or CHM2210 will be accepted as substitute.
# UNDERGRAD ADVISING WORKSHEET

**Freshmen Year Summer B/Fall 2012**

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<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
<th>CERAMICS</th>
<th>ELEC. MATERIALS</th>
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