Engineering

Programs in Engineering are multi-department programs, and administered by the College of Engineering. Requirements are determined based on the specific area of interest. Options include a minor at the undergraduate level, and a master's degree at the graduate level.

College of Engineering
W1025 Lafferre Hall
Columbia, MO 65211
http://engineering.missouri.edu

Faculty

Please see the appropriate degree program pages for faculty information.

* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

** Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

Undergraduate

• Minor in Engineering (http://catalog.missouri.edu/undergraduategraduate/collegeofengineering/engineering/minor-engineering)

Graduate

• ME in Engineering (http://catalog.missouri.edu/undergraduategraduate/collegeofengineering/engineering/me-engineering)

The College of Engineering offers the Master of Engineering degree for graduate students interested in a terminal master's degree, who have a demonstrated need for a professional, non-research degree in engineering, and have an academic interest in a specific focus area within engineering.

Several departments in the College of Engineering administers an ME degree focusing in that area.

Note: A focus area is not listed on the MU transcript. Hence the transcript and the diploma for any student completing an ME degree will only indicate Master of Engineering, with no designation of any specific department.

ENGINR 1000: Introduction to Engineering
This course will help students identify a field of engineering that they will pursue during the remainder of their studies at MU. This objective will be achieved by exposing students to the history of our engineering disciplines, and by giving an overview of the individual departments within the college of engineering. Guest lecturers from industry will make presentations on what it's like to be an engineer. Other lectures will be given to help acclimate students to university life. Graded on A-F basis only.

Credit Hour: 1

ENGINR 1001: Experimental Course
For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

Credit Hour: 3-99

ENGINR 1100: Engineering Graphics Fundamentals
Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

Credit Hours: 2

Prerequisites or Corequisites: MATH 1500

Prerequisites: Restricted to Engineering Students only, or by departmental consent

ENGINR 1110: Solid Modeling for Engineering Design
Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation techniques and advanced graphical presentation practices. Graded on A-F basis only.

Credit Hour: 1

Prerequisites: ENGINR 1100 or instructor's consent. Restricted to Engineering Students Only or by departmental consent

ENGINR 1200: Statics and Elementary Strength of Materials
Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

Credit Hours: 3

Prerequisites or Corequisites: PHYSICS 2750. Restricted to Engineering Students only or with departmental consent

Prerequisites: MATH 1500

ENGINR 2001: Experimental Course
For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

Credit Hour: 1-99

ENGINR 2001W: Experimental Course - Writing Intensive
For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

Credit Hour: 1-99

ENGINR 2010: Women in Engineering Leadership
This is a course focused on women in leadership, leadership development and leadership in engineering. Through experiential learning, empowering examples, group discussion, written reflections, attendance at three conferences, one retreat and completion of two short papers and one major project, you will develop the self-knowledge and skills to practice leadership for a changing world, explore your own potential for leadership, explore the context for the practice of leadership and learn to make a difference through leadership. Beginning in August and working through May, you will work individually and in teams to produce a final project that shows how your own skills and knowledge about leadership can you help you use your passion and engineering degree to impact the world around you.

Credit Hours: 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Credit Hours</th>
<th>Prerequisites and Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGINR 2100</td>
<td>Circuit Theory for Engineers</td>
<td>DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power and three-phase, transformers.</td>
<td>3</td>
<td>MATH 1700. For Non-Electrical and Computer Engineering Majors. Restricted to Engineering Students only or with departmental consent</td>
</tr>
<tr>
<td>ENGINR 2100H</td>
<td>Circuit Theory for Engineers - Honors</td>
<td>DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power.</td>
<td>3</td>
<td>MATH 1700. Honors eligibility required</td>
</tr>
<tr>
<td>ENGINR 2200</td>
<td>Intermediate Strength of Materials</td>
<td>Elements of mechanics of elastic materials.</td>
<td>3</td>
<td>ENGINR 1200. Restricted to Engineering Students only or with departmental consent</td>
</tr>
<tr>
<td>ENGINR 2300</td>
<td>Engineering Thermodynamics</td>
<td>(same as MAE 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.</td>
<td>3</td>
<td>PHYSCS 2750. Restricted to Engineering Students Only or departmental consent</td>
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<tr>
<td>ENGINR 2500</td>
<td>A History of Modern Engineering</td>
<td>This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.</td>
<td>3</td>
<td>Instructors consent required. Students must be in Academic Good Standing</td>
</tr>
<tr>
<td>ENGINR 2500H</td>
<td>A History of Modern Engineering - Honors</td>
<td>This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of the World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.</td>
<td>3</td>
<td>Honors eligibility required</td>
</tr>
<tr>
<td>ENGINR 2600H</td>
<td>History of Human Spaceflight - Honors/ Writing Intensive</td>
<td>This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only.</td>
<td>3</td>
<td>Honors eligibility required</td>
</tr>
<tr>
<td>ENGINR 3000</td>
<td>Short Term Education Abroad</td>
<td>Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.</td>
<td>3</td>
<td>Honors eligibility required</td>
</tr>
<tr>
<td>ENGINR 3000H</td>
<td>Short Term Education Abroad - Honors</td>
<td>Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.</td>
<td>3</td>
<td>Honors eligibility required</td>
</tr>
<tr>
<td>ENGINR 4000</td>
<td>Study Abroad Technical Elective</td>
<td>This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.</td>
<td>3-6</td>
<td>Instructors consent required. Students must be in Academic Good Standing</td>
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<tr>
<td>ENGINR 4085</td>
<td>Problems in Engineering</td>
<td>Special design, experimental or analytical problems in engineering. May be repeated to 6 hours.</td>
<td>0-6</td>
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<tr>
<td>ENGINR 4890</td>
<td>Multi-disciplinary Senior Engineering Capstone Design</td>
<td>Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.</td>
<td>3</td>
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</tr>
</tbody>
</table>
Prerequisites: Instructor's consent. Student's department consent also required
Recommended: Senior standing

ENGINR 4890W: Multi-disciplinary Senior Engineering Capstone
Design - Writing Intensive
Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

Credit Hours: 3
Prerequisites: Instructor's consent. Student's department consent also required
Recommended: Senior standing

ENGINR 8100: Design and Development of Biomedical Innovations
(same as BIOL_EN 8100). This course takes students through the process of brainstorming and working out a solution to a medical need, and then producing a product. Outputs may include the development of a physical prototype through interactions with the College of Engineering rapid prototype facility. May be repeated for credit. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Must be enrolled in a graduate degree program