Mechanical engineers are problem-solvers who make things work better, more efficiently, and more economically. They are innovators, coming up with original ideas to apply scientific knowledge in new ways. Mechanical engineers are builders, designing and developing machines and systems that make life easier. Mechanical engineers have strong science, mathematics, and technology backgrounds.

Manufacturing processes, design of mechanical equipment and systems, and energy generation and utilization are traditional mechanical engineering fields. Students receive basic preparation in all of these areas. Through choice of elective courses they may further specialize in areas such as automatic control systems, renewable energy systems, robotics, product design, biomedical engineering, computational mechanics, manufacturing systems engineering, etc. Mechanical engineering prepares students for entrance into industry, for independent business (e.g., consulting, contracting, or manufacturing), or for work in government agencies. A degree in mechanical engineering may be used as a background for medicine, law, or business, as well as for graduate work in engineering.

Work in these areas requires a solid background in mathematics, statistics, mechanics, physics, machine design, thermal sciences, materials, the use of computers, and manufacturing processes. Mechanical engineers must also possess good communication skills and be able to work in teams. Mechanical engineers should be aware of social and environmental consequences of their work.

With these skills, broad training, and an emphasis on systems design, mechanical engineers are in demand in practically every type of manufacturing, consulting, sales, and research organization. Mechanical engineers may work in automotive, materials processing, heavy equipment, paper, plastics, power, aerospace, chemical, electronics, or many other large and small industries. Their work may involve research and development of new products, design of equipment or systems, supervision of production, plant engineering, administration, sales engineering, or testing of individual components or complete assemblies.

Although many special areas exist in the profession, mechanical engineering can be subdivided into energy systems and mechanical systems.

The energy systems field has taken on special significance with the current awareness of the limited energy sources and the effects of energy use on the environment. In this field, mechanical engineers carry out work on the behavior of liquids, gases, and solids as they are used in all types of energy-conversion systems. Automotive engines, gas turbines, steam power plants, refrigeration systems, air pollution control, cryogenics and energy utilization require this type of background. To be proficient in this field the engineer must have a knowledge of thermodynamics, fluid dynamics, heat transfer, and related subjects.

The mechanical systems field covers the design and manufacturing of products and equipment. Mechanical engineers who focus on design conceive of new devices and machines and also refine and improve existing designs. The design engineer must be proficient in kinematics, machine elements, mechanics, strength and properties of materials, dynamics, vibrations, etc. Mechanical engineers who focus on manufacturing are involved with planning and selecting manufacturing methods, with designing and developing manufacturing equipment, and with increasing the efficiency and productivity of current manufacturing technologies for polymer, metal, and ceramic products. The manufacturing engineer uses chemistry, materials science, mechanics of materials, materials processing principles and practices, principles of computer control, engineering statistics, and other physical and thermal sciences to improve manufacturing operations and systems, and the products they produce. Increasingly, the systems that mechanical engineers work with incorporate biological and information technology components.

MECHANICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

Graduates from the undergraduate program in mechanical engineering will choose to use the knowledge and skills they have acquired during their undergraduate years to pursue a wide variety of career and life goals. We encourage this diversity of paths.

Independent of whether our graduates choose to pursue a professional career, postgraduate education, or volunteer service in engineering or a different field; we expect that our graduates will achieve the following objectives within three to five years after graduation:

1. They will exhibit a fundamental understanding of broader engineering disciplines with strong skills in mechanical engineering, problem solving, leadership, teamwork, and communication.
2. They will use these skills to contribute to their organizations and communities.
3. They will make thoughtful, well-informed decisions in their career and life.
4. They will demonstrate a continuing commitment to and interest in their own and other's education.

HOW TO GET IN

ADMISSION TO THE COLLEGE AS A FRESHMAN

Students applying to UW–Madison (https://www.admissions.wisc.edu/apply) need to indicate an engineering major (https://www.engr.wisc.edu/academics/undergraduate-academics/choosing-a-major) as their first choice in order to be considered for direct admission to the College of Engineering. Direct admission to a major means students will start in the program of their choice in the College of Engineering and will need to meet progression requirements (https://www.engr.wisc.edu/academics/student-services/academic-advising/first-year-undergraduate-students/progression-requirements) at the end of the first year to guarantee advancement in that program.

CROSS-CAMPUS TRANSFER TO ENGINEERING

UW–Madison students in other schools and colleges on campus must meet the course and credit requirements for admission to engineering degree granting classifications specified in the general college requirements (https://www.engr.wisc.edu/academics/student-services/academic-advising/cross-campus-students). The requirements are the minimum for admission consideration. Cross-campus admission is competitive and selective, and the grade point average expectations may increase as demand trends change. The student’s overall academic record at UW–Madison is also considered. Students apply to their intended engineering program by submitting the online application by stated deadlines for spring and fall. The College of Engineering offers
group information sessions (https://www.engr.wisc.edu/academics/student-services/academic-advising/cross-campus-students) for students to learn about the cross-campus transfer process.

**OFF-CAMPUS TRANSFER TO ENGINEERING**

With careful planning, students at other accredited institutions can transfer coursework that will apply toward engineering degree requirements at UW–Madison. Off-campus transfer applicants are considered for direct admission to the College of Engineering by applying to the Office of Admissions with an engineering major listed as their first choice. Those who are admitted to their intended engineering program must meet progression requirements (https://www.engr.wisc.edu/academics/student-services/academic-advising/transfer-students) at the point of transfer or within their first two semesters at UW–Madison to guarantee advancement in that program. A minimum of 30 credits in residence in the College of Engineering is required after transferring, and all students must meet all requirements for their major in the college. Transfer admission to the College of Engineering is competitive and selective, and students who have earned more than 80 transferable semester credits at the time of application are not eligible to apply.

The College of Engineering has dual degree programs with select four-year UW System campuses. Eligible dual degree applicants are not subject to the 80 credit limit.

Off-campus transfer students are encouraged to discuss their interests, academic background, and admission options with the Transfer Coordinator in the College of Engineering: ugtransfer@engr.wisc.edu or 608-262-2473.

**SECOND BACHELOR’S DEGREE**

The College of Engineering does not accept second undergraduate degree applications. Second degree students (https://www.engr.wisc.edu/admissions/undergraduate-admissions/returning-adults-second-degree-students) might explore the Biological Systems Engineering program at UW–Madison, an undergraduate engineering degree elsewhere, or a graduate program in the College of Engineering.

**REQUIREMENTS**

**UNIVERSITY GENERAL EDUCATION REQUIREMENTS**

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatetestudytext) section of the Guide.

**GENERAL EDUCATION**

- Breadth—Humanities/Literature/Arts: 6 credits
- Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth—Social Studies: 3 credits
- Communication Part A & Part B *
- Ethnic Studies *
- Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

**SUMMARY OF REQUIREMENTS**

The following curriculum applies to undergraduate students admitted to the Mechanical Engineering degree program in Fall 2016 or later. Check with the department for any recent changes. Students admitted before Fall 2016 can locate their curriculum at this link (https://www.engr.wisc.edu/department/mechanical-engineering/academics/bachelor-of-science-in-mechanical-engineering).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Math/Science Electives</td>
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<tr>
<td>Communication Skills</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Liberal Studies</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Free Elective</td>
<td>1</td>
<td></td>
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<td>Total Credits</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>Calculus and Analytic Geometry 1</td>
<td>5</td>
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<tr>
<td>MATH 222</td>
<td>Calculus and Analytic Geometry 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 234</td>
<td>Calculus–Functions of Several Variables</td>
<td>4</td>
</tr>
<tr>
<td>MATH 320</td>
<td>Linear Algebra and Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 324</td>
<td>Introductory Applied Statistics for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

All transfer students must have the equivalent of the above courses. If the above requirement is fulfilled with fewer than 19 credits, the balance becomes free elective credits. Transfer students may fulfill the statistics requirement with other statistics courses having a calculus prerequisite and the approval of the mechanical engineering department via a Course Substitution Form.

**BASIC SCIENCE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the following:</td>
<td>5-9</td>
<td></td>
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</tbody>
</table>
### Mechanical Engineering, B.S.

**CHEM 109**  
Advanced General Chemistry

**CHEM 103**  
General Chemistry I

& **CHEM 104**  
and General Chemistry II

**COMP SCI 301**  
Introduction to Data Programming  
3

**PHYSICS 202**  
General Physics  
1

Total Credits  
13-17

1 Students following the normal M E course sequence need not take PHYSICS 201 General Physics to satisfy the prerequisites for PHYSICS 202 General Physics.

### NON-MECHANICAL ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>E M A 201</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 350</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>E C E 376</td>
<td>Electrical and Electronic Circuits</td>
<td>3</td>
</tr>
<tr>
<td>E C E 377</td>
<td>Fundamentals of Electrical and Electro-mechanical Power Conversion</td>
<td>3</td>
</tr>
<tr>
<td>or M E 346</td>
<td>Introduction to Feedback Control for Mechanical Engineers</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits  
12

### MECHANICAL ENGINEERING CORE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M E 201</td>
<td>Introduction to Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>M E 231</td>
<td>Geometric Modeling for Design and Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>M E 240</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>M E 306</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>M E/E M A 307</td>
<td>Mechanics of Materials Lab</td>
<td>1</td>
</tr>
<tr>
<td>M E 313</td>
<td>Manufacturing Processes</td>
<td>3</td>
</tr>
<tr>
<td>M E 314</td>
<td>Manufacturing Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>M E 331</td>
<td>Computer-Aided Engineering</td>
<td>3</td>
</tr>
<tr>
<td>M E 340</td>
<td>Dynamic Systems</td>
<td>3</td>
</tr>
<tr>
<td>M E 342</td>
<td>Design of Machine Elements</td>
<td>3</td>
</tr>
<tr>
<td>M E 351</td>
<td>Interdisciplinary Experiential Design Projects I</td>
<td>6</td>
</tr>
<tr>
<td>&amp; M E 352</td>
<td>Interdisciplinary Experiential Design Projects II</td>
<td></td>
</tr>
<tr>
<td>M E 361</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>M E 363</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>M E 364</td>
<td>Elementary Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>M E 368</td>
<td>Engineering Measurements and Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>M E 370</td>
<td>Energy Systems Laboratory</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits  
50

### TECHNICAL ELECTIVES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M E 353</td>
<td>Introductory Transport Phenomena Operations</td>
<td>3</td>
</tr>
<tr>
<td>M E 341</td>
<td>Elementary Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>M E 343</td>
<td>Introductory Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>M E 345</td>
<td>Intermediate Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 311</td>
<td>Hydroscience</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 320</td>
<td>Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR/G L E 330</td>
<td>Soil Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>CIV ENGR 370</td>
<td>Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 392</td>
<td>Building Information Modeling (BIM)</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 415</td>
<td>Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>COMP SCI 300</td>
<td>Programming II</td>
<td>3</td>
</tr>
<tr>
<td>COMP SCI/E C E 354</td>
<td>Machine Organization and Programming</td>
<td>3</td>
</tr>
<tr>
<td>COMP SCI/ INFO SYS 371</td>
<td>Technology of Computer-Based Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E 320</td>
<td>Electrodynamics II</td>
<td>3</td>
</tr>
<tr>
<td>E C E 330</td>
<td>Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E 340</td>
<td>Electronic Circuits I</td>
<td>3</td>
</tr>
<tr>
<td>E C E 342</td>
<td>Electronic Circuits II</td>
<td>3</td>
</tr>
<tr>
<td>E C E/COMP SCI 352</td>
<td>Digital System Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>E C E 353</td>
<td>Introduction to Microprocessor Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E/COMP SCI 354</td>
<td>Machine Organization and Programming</td>
<td>3</td>
</tr>
<tr>
<td>E C E 355</td>
<td>Electromechanical Energy Conversion</td>
<td>3</td>
</tr>
<tr>
<td>E C E 356</td>
<td>Electric Power Processing for Alternative Energy Systems</td>
<td></td>
</tr>
</tbody>
</table>

The mechanical engineering curriculum requires a total of 9 credits of technical electives. A minimum of 3 of those 9 credits must be from formal M E courses numbered 400 and higher. A formal course is defined as a class that meets regularly in a lecture format to study a selected topic. The educational mission is assisted with homework and exams. Formal courses include online courses but do not include seminar, survey, independent study, research, or similar courses.

Technical electives include engineering, mathematics, physics, chemistry, statistics, and computer science courses numbered 400 and higher. INTEREGR and E P D courses are limited to those listed below. The following courses are also accepted as technical electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT&amp;PHY 335</td>
<td>Physiology</td>
<td>5</td>
</tr>
<tr>
<td>BMOLCHEM 314</td>
<td>Introduction to Human Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BSE 351</td>
<td>Structural Design for Agricultural Facilities</td>
<td>3</td>
</tr>
<tr>
<td>BSE 364</td>
<td>Engineering Properties of Food and Biological Materials</td>
<td>3</td>
</tr>
<tr>
<td>BSE/ENVIR ST 367</td>
<td>Renewable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>CBE/B M E 320</td>
<td>Introductory Transport Phenomena</td>
<td>4</td>
</tr>
<tr>
<td>CBE 326</td>
<td>Momentum and Heat Transfer Operations</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 341</td>
<td>Elementary Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 343</td>
<td>Introductory Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 345</td>
<td>Intermediate Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 311</td>
<td>Hydroscience</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 320</td>
<td>Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR/G L E 330</td>
<td>Soil Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>CIV ENGR 370</td>
<td>Transportation Engineering</td>
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</tr>
<tr>
<td>CIV ENGR 392</td>
<td>Building Information Modeling (BIM)</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 415</td>
<td>Hydrology</td>
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<td>COMP SCI 300</td>
<td>Programming II</td>
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<td>3</td>
</tr>
<tr>
<td>COMP SCI/ INFO SYS 371</td>
<td>Technology of Computer-Based Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E 320</td>
<td>Electrodynamics II</td>
<td>3</td>
</tr>
<tr>
<td>E C E 330</td>
<td>Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E 340</td>
<td>Electronic Circuits I</td>
<td>3</td>
</tr>
<tr>
<td>E C E 342</td>
<td>Electronic Circuits II</td>
<td>3</td>
</tr>
<tr>
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<td>Digital System Fundamentals</td>
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</tr>
<tr>
<td>E C E 353</td>
<td>Introduction to Microprocessor Systems</td>
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</tr>
<tr>
<td>E C E/COMP SCI 354</td>
<td>Machine Organization and Programming</td>
<td>3</td>
</tr>
<tr>
<td>E C E 355</td>
<td>Electromechanical Energy Conversion</td>
<td>3</td>
</tr>
<tr>
<td>E C E 356</td>
<td>Electric Power Processing for Alternative Energy Systems</td>
<td></td>
</tr>
</tbody>
</table>
E P 272 Engineering Problem Solving Using Maple 1
E P D/E ASIAN 374 Intermediate Technical Japanese I 3
E P D/E ASIAN 375 Intermediate Technical Japanese II 3
E P D 660 Core Competencies of Sustainability 3
INTEREGR 301 Engineering and Biology: Technological Symbiosis 1-4
I SY E 315 Production Planning and Control 3
I SY E 323 Operations Research-Deterministic Modeling 3
I SY E/PSYCH 349 Introduction to Human Factors 3
MATH 321 Applied Mathematical Analysis 3
MATH 322 Applied Mathematical Analysis 3
M E 273 Engineering Problem Solving with EES 1
M S & E 330 Thermodynamics of Materials 4
M S & E 332 Macroprocessing of Materials 3
M S & E 352 Materials Science-Transformation of Solids 3
N E 305 Fundamentals of Nuclear Engineering 3
PHYSICS 205 Modern Physics for Engineers 3
PHYSICS 241 Introduction to Modern Physics 3
PHYSICS 311 Mechanics 3
PHYSICS 321 Electric Circuits and Electronics 4
PHYSICS 322 Electromagnetic Fields 3
PHYSICS 325 Optics 4
STAT 311 Introduction to Theory and Methods of Mathematical Statistics I 3
STAT 312 Introduction to Theory and Methods of Mathematical Statistics II 3
STAT 333 Applied Regression Analysis 3
STAT 349 Introduction to Time Series 3
STAT 351 Introductory Nonparametric Statistics 3

Up to 3 technical elective credits may be obtained for non-formal courses such as independent study courses (M E 489, M E 491, M E 492, and other engineering independent study courses numbered 399 and higher); Cooperative Education (M E 1); and E P D 690, "Wisconsin Engineer Magazine."

**MATH/SCIENCE ELECTIVES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 100</td>
<td>Introduction to College Composition</td>
<td>3</td>
</tr>
<tr>
<td>or LSC 100</td>
<td>Science and Storytelling</td>
<td></td>
</tr>
<tr>
<td>or COM ARTS 100</td>
<td>Introduction to Speech Composition</td>
<td></td>
</tr>
<tr>
<td>or ESL 118</td>
<td>Academic Writing II</td>
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<tr>
<td>E P D 397</td>
<td>Technical Communication</td>
<td>3</td>
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Total Credits 6

**COMMUNICATION SKILLS**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ENGL 100</td>
<td>Introduction to College Composition</td>
<td>3</td>
</tr>
<tr>
<td>or LSC 100</td>
<td>Science and Storytelling</td>
<td></td>
</tr>
<tr>
<td>or COM ARTS 100</td>
<td>Introduction to Speech Composition</td>
<td></td>
</tr>
<tr>
<td>or ESL 118</td>
<td>Academic Writing II</td>
<td></td>
</tr>
<tr>
<td>E P D 397</td>
<td>Technical Communication</td>
<td>3</td>
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</table>

Total Credits 6

**LIBERAL ELECTIVES**

<table>
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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>M E 291</td>
<td>Undergraduate Mechanical Engineering Projects</td>
<td>1-3</td>
</tr>
<tr>
<td>M E 299</td>
<td>Independent Study</td>
<td>1-3</td>
</tr>
<tr>
<td>M E 489</td>
<td>Honors in Research</td>
<td>1-3</td>
</tr>
<tr>
<td>M E 491</td>
<td>Mechanical Engineering Projects I</td>
<td>1-3</td>
</tr>
<tr>
<td>M E 492</td>
<td>Mechanical Engineering Projects II</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Up to 3 technical elective credits may be obtained for non-formal courses such as independent study courses (M E 489, M E 491, M E 492, and other engineering independent study courses numbered 399 and higher); Cooperative Education (M E 1); and E P D 690, "Wisconsin Engineer Magazine."

Students fulfilling all course requirements with fewer than 128 credits must comply with the credit minimum by taking additional free elective credits. Students in good standing may take free elective courses pass/fail (see the College of Engineering Official Regulations for details). Pass/fail courses do not count toward specific degree requirements.

**ADDITIONAL INFORMATION**

For information on credit loads, adding or dropping courses, course substitutions, pass/fail, auditing courses, dean's honor list, repeating courses, probation, and graduation, see the College of Engineering Official Regulations.

**UNIVERSITY DEGREE REQUIREMENTS**

Total Degree To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency
Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

Quality of Work
Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

1. (a) An ability to apply knowledge of mathematics, science, and engineering.
2. (b) An ability to design and conduct experiments, as well as to analyze and interpret data.
3. (c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. (d) An ability to function on multidisciplinary teams.
5. (e) An ability to identify, formulate, and solve engineering problems.
6. (f) An understanding of professional and ethical responsibility.
7. (g) An ability to communicate effectively.
8. (h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. (i) A recognition of the need for, and an ability to engage in life-long learning.
10. (j) A knowledge of contemporary issues.
11. (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

FOUR-YEAR PLAN

SAMPLE FOUR-YEAR PLAN

First Year

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<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>MATH 222</td>
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<td>CHEM 103¹</td>
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Third Year

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Fourth Year

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Total Credits 131

¹ CHEM 109 Advanced General Chemistry may be taken in place of CHEM 103 General Chemistry I and CHEM 104 General Chemistry II; however, students may need to take additional free electives to meet the minimum number of credits required for the degree.

ADVISING AND CAREERS

ADVISING
Each College of Engineering program has academic advisors dedicated to serving its students. Program advisors can help current College of Engineering students with questions about accessing courses, navigating degree requirements, resolving academic issues and more. Students can find their assigned advisor on the homepage of their student center.

ENGINEERING CAREER SERVICES

Engineering Career Services (ECS) assists students in identifying pre-professional work-based learning experiences such as co-ops and summer internships, considering and applying to graduate or professional school, and finding full-time professional employment during their graduation year.

ECS offers two major career fairs per year, assists with resume writing and interviewing skills, hosts workshops on the job search, and meets one-on-one with students to discuss offer negotiations.
Students are encouraged to utilize the ECS office early in their academic careers. For comprehensive information on ECS programs and workshops, see the ECS website or call 608-262-3471.

**PEOPLE**

**PROFESSORS**
- Ghandhi (chair)
- Lorenz
- Negrut (also Electrical and Computer Engineering, Materials Science and Engineering, and Computer Sciences)
- Nellis (also Engineering Physics)
- Nellis (also Materials Science and Engineering)
- Pfotenhauer (also Engineering Physics)
- Qian
- Rutland
- Sanders (also Electrical and Computer Engineering)
- Shapiro (also Computer Sciences)
- Suresh
- Thelen (also Biomedical Engineering and Materials Science and Engineering)
- Turng (also Biomedical Engineering and Materials Science and Engineering)

**ASSOCIATE PROFESSORS**
- Eriten (also Materials Science and Engineering)
- Franck (also Biomedical Engineering and Engineering Physics)
- Krupenko
- Miller (also Engineering Physics)
- Pfefferkorn (also Materials Science and Engineering)
- Rothamer
- Trujillo (also Engineering Physics)
- Zinn (also Biomedical Engineering)

**ASSISTANT PROFESSORS**
- Adamczyk (also Biomedical Engineering)
- Anderson (also Engineering Physics)
- Henak (also Biomedical Engineering)
- Kokjohn (Engineering Physics)
- Min
- Pan
- Roldan-Alzate (also Biomedical Engineering)
- Rudraraju
- Rudykh

**ACCREDITATION**

Accreditation.


Note: Undergraduate Program Educational Objectives and Student Outcomes are made publicly available at the Departmental website. (In this Guide, the program’s Student Outcomes are designated by our campus as “Learning Outcomes.”)