MECHANICAL ENGINEERING MAJOR

Requirements

Bachelor of Science in Mechanical Engineering
134 credits

Natural Science Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>CH 0111</td>
<td>General Chemistry I and General Chemistry I Lab</td>
<td>4</td>
</tr>
<tr>
<td>MA 0145</td>
<td>Calculus I for Chemistry, Engineering, and Physics Majors</td>
<td>4</td>
</tr>
<tr>
<td>MA 0146</td>
<td>Calculus II for Chemistry, Engineering, and Physics Majors</td>
<td>4</td>
</tr>
<tr>
<td>MA 0245</td>
<td>Calculus III for Chemistry, Engineering, and Physics Majors</td>
<td>4</td>
</tr>
<tr>
<td>MA 0251</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MA 0322</td>
<td>Partial Differential Equations</td>
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</tr>
<tr>
<td>PS 0115 &amp; 0115L</td>
<td>General Physics I and General Physics I Lab</td>
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<td>PS 0116 &amp; 0116L</td>
<td>General Physics II and General Physics II Lab</td>
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Total Credits: 30

Major Requirements

For a major in mechanical engineering, students complete the following:

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<tr>
<td>EE 0213</td>
<td>Introduction to Electric Circuits and Electric Circuits Lab</td>
<td>4</td>
</tr>
<tr>
<td>EG 0031</td>
<td>Fundamentals of Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>EG 0130</td>
<td>Engineering Graphics I</td>
<td>3</td>
</tr>
<tr>
<td>EG 0145</td>
<td>Mathematical Analysis</td>
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<tr>
<td>EG 0390</td>
<td>Senior Design Project I</td>
<td>3</td>
</tr>
<tr>
<td>EG 0391</td>
<td>Senior Design Project II</td>
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Engineer Foundation

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ME 0201</td>
<td>Engineering Statics</td>
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<tr>
<td>ME 0203</td>
<td>Kinematics and Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 0206L</td>
<td>Mechanics Lab</td>
<td>1</td>
</tr>
<tr>
<td>ME 0207</td>
<td>Materials Science</td>
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</tr>
<tr>
<td>ME 0241</td>
<td>Principles of Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 0307L</td>
<td>Dynamics Systems Lab</td>
<td>1</td>
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<tr>
<td>ME 0308</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 0311</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 0318</td>
<td>Finite Element Analysis</td>
<td>3</td>
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<tr>
<td>ME 0325</td>
<td>Engineering Systems Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 0342</td>
<td>Applications of Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 0347</td>
<td>Fluid Mechanics</td>
<td>3</td>
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</table>

ME 0348L | Thermal and Fluids Lab                            | 1       |
ME 0349 | Heat Transfer                                      | 3       |
ME 0350L | Energy Transfer Lab                                | 1       |
Select five electives in Mechanical Engineering | 15      |

Total Credits: 71

Mechanical Engineering Electives

Possible electives may include:

<table>
<thead>
<tr>
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<tr>
<td>ME 0323</td>
<td>Thermal Management of Microdevices</td>
<td>3</td>
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<tr>
<td>ME 0346</td>
<td>Energy Conversion</td>
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<td>ME 0353</td>
<td>Computational Fluid Dynamics</td>
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<tr>
<td>ME 0354</td>
<td>Heat and Mass Transfer</td>
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<tr>
<td>ME 0362</td>
<td>Turbomachinery</td>
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<tr>
<td>ME 0364</td>
<td>Combustion</td>
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<tr>
<td>EG 0300</td>
<td>Feedback Control Systems</td>
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<tr>
<td>EG 0303</td>
<td>Industrial Automation</td>
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<tr>
<td>EG 0305</td>
<td>Design of Mechatronics Systems</td>
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<tr>
<td>ME 0330</td>
<td>Engineering Graphics II</td>
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<tr>
<td>ME 0319</td>
<td>Applications of Finite Element Analysis</td>
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<tr>
<td>ME 0321</td>
<td>Theory and Applications of Robot Kinematics</td>
<td>3</td>
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<tr>
<td>ME 0322</td>
<td>Advanced Dynamics</td>
<td>3</td>
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<tr>
<td>ME 0324</td>
<td>Micro and Nano Manufacturing</td>
<td>3</td>
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<td>ME 0327</td>
<td>Fracture Mechanics</td>
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<td>ME 0330</td>
<td>Mechanics of Composite Materials</td>
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<tr>
<td>ME 0372</td>
<td>Applications of Theory of Elasticity</td>
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<tr>
<td>ME 0382</td>
<td>Independent Study: Advanced Mechanical Project</td>
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Note: In addition to the undergraduate courses listed, juniors and seniors may take appropriate graduate-level courses as electives with the permission of the department chair and the instructor.

Plan of Study

A typical, full-time, four-year plan of study appears below. Some variation may be possible. Students should always discuss their individual plan of study with their advisor prior to registering for courses.

<table>
<thead>
<tr>
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<td>Fundamentals of Engineering I</td>
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<td>PS 0115</td>
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<td>PS 0115L</td>
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<td>ENW 0100</td>
<td>Introduction to Rhetoric and Composition</td>
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</table>

1. Choose an appropriate HI or RS course at the 100 level
2. Choose any appropriate RS, HI or PH core course
3. Core Social Science course may be filled by appropriate courses in Communication, Economics, Psychology, Politics, Sociology and Anthropology, etc.
4. Major electives are chosen from the department, but may be chosen with approval of advisor and Department Chair from among other courses offered in the School of Engineering
5. Choose any Language offered by the Modern Language Department
6. Visual and Performing Art History courses can be chosen from Art History, Music, Film/Television & Media, Studio Art, Theater, etc. that fulfill the Behavioral & Social Sciences requirement
7. Any English, Modern Language & Literature and Classics course