Required Courses for Mechanical Engineering Degree – 2014-15

This program is accredited by the Engineering Accreditation Commission of ABET, [http://www.abet.org](http://www.abet.org)

<<This form shows tentative course offerings beginning with Summer Session 2014 through Spring Quarter 2015>>

Undergraduate Adviser:
Staff: Julie Burgal, 2132 Bainer Hall
Lisa Anderson, 2132 Bainer Hall
maeughelp@ucdavis.edu

For advising hours, please visit: [http://mae.ucdavis.edu/ugadv.php](http://mae.ucdavis.edu/ugadv.php)

Note: Curriculum and course offerings are subject to change. You must fulfill the degree requirements stated in the catalog of the year you graduate or the year immediately prior.

Communication, Writing and General Education Requirements

Lower Division Composition (4 units)
Select ONE of the following courses:

- UWP 1, 1Y or 1V Expository Writing
- ENL 3 Introduction to Literature
- COM 1 Bks of West Civ/ Ancient World
- COM 2 Bks of West Civ/MidAge-Enlight.
- COM 3 Bks of West Civ/Modern Crisis
- COM 4 Bks of Contemporary World
- NAS 5 Intro to Native American Lit.

Upper Division Composition (0 or 4 units)
Select ONE of the following courses:

- UWP 101 Advanced Composition
- UWP 102E Writing in the Disciplines: Engineering
- UWP 104A Writing in the Professions: Business Writing
- UWP 104E Writing in the Professions: Science
- UWP 104T Writing in the Professions: Technical Writing

Alternatively, you may satisfy the upper division English requirement by passing the Upper Division Composition Exam.

Communication (4 units)
Select ONE of the following courses:

- CMN 1 Intro to Public Speaking
- CMN 3 Group Communication

General Education Requirement
This requirement will vary depending on the year you entered UC Davis. Please refer to your specific GE requirement.

Lower and upper division composition courses require a grade of C- or better to fulfill the requirement

Lower Division Mathematics, Physical Sciences, and Engineering Requirements

Mathematics and Physical Science (51 units)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 21A</td>
<td>Calculus</td>
<td>4</td>
<td>F W S SSI</td>
<td>Satisfactory score on math placement exam</td>
</tr>
<tr>
<td>MAT 21B</td>
<td>Calculus</td>
<td>4</td>
<td>F W S SSI/II</td>
<td>MAT 21A or 21AH</td>
</tr>
<tr>
<td>MAT 21C</td>
<td>Calculus</td>
<td>4</td>
<td>F W S SSI/II</td>
<td>MAT 21B or 21BH</td>
</tr>
<tr>
<td>MAT 21D</td>
<td>Vector Analysis</td>
<td>4</td>
<td>F W S SSI/II</td>
<td>MAT 21C or 21CH</td>
</tr>
<tr>
<td>MAT 22A</td>
<td>Linear Algebra</td>
<td>3</td>
<td>F W S SSI/II</td>
<td>9 units college math, ENG 6 or knowledge of MATLAB</td>
</tr>
<tr>
<td>MAT 22B</td>
<td>Differential Equations</td>
<td>3</td>
<td>F W S SSI/II</td>
<td>MAT 21C, 22A</td>
</tr>
<tr>
<td>PHY 9A (L)</td>
<td>Classical Physics</td>
<td>5</td>
<td>F S SSI</td>
<td>MAT 21B</td>
</tr>
<tr>
<td>PHY 9B (L)</td>
<td>Classical Physics</td>
<td>5</td>
<td>F W S SSI</td>
<td>PHY 9A, MAT 21C, MAT 21D</td>
</tr>
<tr>
<td>PHY 9C (L)</td>
<td>Classical Physics</td>
<td>5</td>
<td>W S SSI</td>
<td>PHY 9B, MAT 21D, MAT 22A</td>
</tr>
<tr>
<td>PHY 9D</td>
<td>Modern Physics</td>
<td>4</td>
<td>F S SSI</td>
<td>PHY 9C, MAT 22A (MAT 22B recommended)</td>
</tr>
<tr>
<td>CHE 2A or 2AH (L)</td>
<td>General Chemistry</td>
<td>5</td>
<td>F W S SSI</td>
<td>Satisfactory score on diagnostics exam</td>
</tr>
<tr>
<td>CHE 2B or 2BH (L)</td>
<td>General Chemistry</td>
<td>5</td>
<td>W S SSI</td>
<td>CHE 2A or 2AH</td>
</tr>
</tbody>
</table>

Engineering (23 units)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 4 (L)</td>
<td>Engineering Graphics in Design</td>
<td>3</td>
<td>F W</td>
<td>ENG 6: C- or better in MAT 21B or EME 5: only in Fall: MAT 21A'</td>
</tr>
<tr>
<td>ENG 6 or EME 5 (L)</td>
<td>Engr Prob Solving / Engr Applic.</td>
<td>4</td>
<td>F W S SSI</td>
<td>ENG 6: C- or better in MAT 21B or EME 5: only in Fall: MAT 21A'</td>
</tr>
<tr>
<td>ENG 17</td>
<td>Circuits I</td>
<td>4</td>
<td>F S SSI</td>
<td>C- or better recommended in: MAT 22A, MAT 22B and PHY 9C</td>
</tr>
<tr>
<td>ENG 35</td>
<td>Statics</td>
<td>4</td>
<td>F W S SSI</td>
<td>MAT 21D; C- or better in PHY 9A</td>
</tr>
<tr>
<td>ENG 45 or 45Y (L)</td>
<td>Properties of Materials</td>
<td>4</td>
<td>F W S SSI/II</td>
<td>C- or better in: MAT 21C and CHE 2A, PHY 9A</td>
</tr>
<tr>
<td>EME 50 (L)</td>
<td>Manufacturing Processes</td>
<td>4</td>
<td>F W</td>
<td>C- or better in: ENG 4 and PHY 9A</td>
</tr>
</tbody>
</table>

may be taken concurrently  (L) Course has a lab component

YOU ARE RESPONSIBLE FOR ENSURING THAT ALL REQUIREMENTS FOR GRADUATION ARE COMPLETE
Upper Division Engineering, Design, Applied Mathematics, and Elective Requirements

Engineering core requirements (44 units)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 (L)</td>
<td>Electronic Circuits and Systems</td>
<td>3</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>ENG 102</td>
<td>Dynamics</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>ENG 103</td>
<td>Fluid Mechanics</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>ENG 104</td>
<td>Mechanics of Materials</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>ENG 105</td>
<td>Thermodynamics</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>ENG 190</td>
<td>Professional Responsibilities</td>
<td>3</td>
<td>W S</td>
<td></td>
</tr>
<tr>
<td>EME 106</td>
<td>Thermo-Fluid Dynamics</td>
<td>4</td>
<td>F W S</td>
<td></td>
</tr>
<tr>
<td>EME 107A (L)</td>
<td>Experimental Methods (Thermo-Fluids)</td>
<td>3</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>EME 107B (L)</td>
<td>Experimental Methods (Controls/Materials)</td>
<td>3</td>
<td>F S</td>
<td></td>
</tr>
<tr>
<td>EME 150A</td>
<td>Mechanical Design</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
<tr>
<td>EME 165</td>
<td>Fundamentals of Heat Transfer</td>
<td>4</td>
<td>F S</td>
<td>SSII</td>
</tr>
<tr>
<td>EME 172</td>
<td>Auto. Control of Eng. Systems</td>
<td>4</td>
<td>F W S</td>
<td>SSII</td>
</tr>
</tbody>
</table>

Restricted Electives - Select TWO of the following courses (8 units):

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 188**</td>
<td>Science &amp; Technology of Sust Power Gen</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>ENG 122**</td>
<td>Intro to Mechanical Vibrations</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>EMS 180</td>
<td>Materials in Engineering Design</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>EAE 142</td>
<td>Sim &amp; Des of Mechatron Syst</td>
<td>4</td>
<td>F W</td>
<td></td>
</tr>
<tr>
<td>EAE 151±</td>
<td>Mechanical Design</td>
<td>4</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>EAE 170±</td>
<td>Struct Dyn and Aeroelasticity</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>EAE 141±</td>
<td>Space Systems Design</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>EAE 154± (L)</td>
<td>Mechatronics</td>
<td>4</td>
<td>SSII</td>
<td></td>
</tr>
<tr>
<td>EAE 171± (L)</td>
<td>Sim &amp; Des of Mechatron Syst</td>
<td>4</td>
<td>F W</td>
<td></td>
</tr>
</tbody>
</table>

System Dynamics / Mechanical Design Elective - Select ONE of the following courses (4 units):

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EME 115*</td>
<td>Intro to Num Analysis</td>
<td>4</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>ENG 180*</td>
<td>Engineering Analysis</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>MAT 128C</td>
<td>Numerical Analysis in Diff. Equa.</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>STA 131A</td>
<td>Introduction to Probability Theory</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

Recommended only for Aerospace Science and Engineering students

Restricted Electives - Select TWO of the following courses (8 units):

<table>
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<th>Units</th>
<th>Qtr Offered</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAE 121± (L)</td>
<td>Engr Applications of Dynamics</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>EAE 122±</td>
<td>Intro to Mechanical Vibrations</td>
<td>4</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>EAE 150±</td>
<td>Mechanical Design</td>
<td>4</td>
<td>W S</td>
<td></td>
</tr>
<tr>
<td>EAE 154± (L)</td>
<td>Mechatronics</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>EME 171±</td>
<td>Sim &amp; Des of Mechatron Syst</td>
<td>4</td>
<td>F W</td>
<td></td>
</tr>
</tbody>
</table>

Other Technical Elective Requirement: Can be taken from any Upper Division Engineering course (including courses above**) except ENG 160, 91, 198, ECS 188 or any 197T course or may be taken from this Technical Elective List: http://mae.ucdavis.edu/ugte.php

Upper Division Technical Elective Requirement: At least 4 units taken from any Upper Division Engineering course (including courses above**) except ENG 160, 191, 198, ECS 188 or any 197T course

Total units for Mechanical Engineering Degree: 157 (Does not include units for GE requirement)