### Mechanical Engineering

**Graduation Requirements**

University of Washington

[https://me.washington.edu](https://me.washington.edu)

**ENGRUD Requirement Sheet – Key**

- ◆ = Placement Requirements
- ★ = Pick two to satisfy placement requirements

**Placement Periods**

Placement 1 = July 1 of first year  
Placement 2 = January 15 of second year

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### Mathematics (24cr)

- ◆ MATH 124, 125, 126 - Calculus with Analytical Geometry I, II, III (15cr)
- MATH 307 - Introduction to Differential Equations (3cr) [pr: MATH 125]
- MATH 308 - Matrix Algebra with Applications (3cr) [pr: MATH 126]
- MATH 309 - Linear Analysis (3cr) [pr: MATH 307 and MATH 308 or MATH 136 or MATH 324 – Advanced Multivariable Calculus (3cr) [pr: MATH 126 or MATH 136]

### Sciences (25cr)

- ★ CHEM 142 - General Chemistry (5cr)
- ★ CHEM 152 - General Chemistry (5cr) [pr: CHEM 142, CHEM 143, or CHEM 145]
- ◆ PHYS 121 - Mechanics (5cr) [pr: MATH 124, or MATH 134]
- ★ PHYS 122 - Electromagnetism (5cr) [pr: MATH 125 or MATH 134; PHYS 122]
- ★ PHYS 123 - Waves (5cr) [pr: MATH 126 or MATH 134; PHYS 122]

### Engineering General Education Requirements (36cr)

**Written and Oral Communication (12cr):**

- ◆ English Composition (5cr)
- ENGR 231 - Into to Technical Communication (3cr)
- Add’l Composition or Writing-W (4cr) - ME 354

**Areas of Knowledge:**

- Visual, Literary & Performing Arts-VLPA (10cr) - ME 123
- Individuals & Society-I&S (10cr)
- VLPA or I&S (4cr)
- Diversity - DIV (3cr) – (may overlap with VLPA/I&S)

### Engineering Fundamentals (31-32cr)

- AA 210 - Engineering Statics (4cr) [pr: MATH 126; PHYS 121]
- CEE 220 - Introduction to Mechanics of Materials (4cr) [pr: AA 210]
- ME 230 - Kinematics and Dynamics (4cr) [pr: AA 210]
- AMATH 301 - Beginning Scientific Computing (4cr) [pr: Either MATH 125, Q SCI 292, or MATH 135]
- ME 123 - Introduction to Visualization and Computer-Aided Design (4cr) [pr: MATH 125 or MATH 135]
- MSE 170 - Fundamentals of Materials Science (4cr) [pr: CHEM 142, CHEM 143, or CHEM 145]
- EE 215 - Fundamentals of Electrical Engineering (4cr) [pr. MATH 136, or MATH 126 and MATH 307 or AMATH 351, either of which may be taken concurrently; PHYS 122]
- IND E 315 (3cr) OR STAT 390 (4cr) OR AP STATS (score 3, 4, 5) by petition
- PHYS 123 - Waves (5cr) [pr: MATH 126 or MATH 134; PHYS 122]

### Departmental Core (45cr)

- ME 323 - Engineering Thermodynamics (5cr)
- ME 331 - Introduction to Heat Transfer (4cr)
- ME 333 - Introduction to Fluid Mechanics (5cr)
- ME 354 - Mechanics of Materials Laboratory (5cr)
- ME 355 - Introduction to Manufacturing Processes (4cr)
- ME 356 - Machine Design Analysis (4cr)
- ME 373 - Introduction to System Dynamics (5cr)
- ME 374 - Systems Dynamic Analysis and Design (5cr)
- ME 395 - Introduction to Mechanical Design (4cr)
- ME 495 – Mechanical Engineering Design (4cr)

### Mechanical Option Courses (19cr)

- See ME Advising Guide online for list of courses.

### Free Electives (4cr)

Additional coursework in any subject area not used elsewhere in degree.

**Total credits required for graduation: 180cr**

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Honors or accelerated sequences of math and chemistry can satisfy some of the above requirements, see department website for specifics. AMATH 351/352/353 are alternatives to Math 307/308/309.

*Updated November 2019*
This is a sample four-year plan for ENGRUD students. It is intended to provide a framework for ENGRUD students to reference as they create their own individual academic plan.

Courses required to request placement for ENGRUD students: MATH 124, MATH 125, MATH 126; PHYS 121; and two additional courses from CHEM 142, CHEM 152, PHYS 122, or PHYS 123; 5 credits of English Composition.

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Cr</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
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</tr>
<tr>
<td>Autumn Quarter</td>
<td>5</td>
<td><strong>MATH 124 – Calculus with Analytical Geometry I</strong></td>
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<tr>
<td>Winter Quarter</td>
<td>5</td>
<td><strong>MATH 125 – Calculus with Analytical Geometry II</strong></td>
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<tr>
<td>Spring Quarter</td>
<td>5</td>
<td><strong>MATH 126 – Calculus with Analytical Geometry III</strong></td>
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<tr>
<td>VLPA/I&amp;S</td>
<td>5</td>
<td><strong>CHEM 142 – General Chemistry</strong></td>
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<td>E-FIG: ENGR 101 &amp; GEN ST 199</td>
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<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td>Autumn Quarter</td>
<td>4</td>
<td><strong>AA 210 – Engineering Statics</strong></td>
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<tr>
<td>Winter Quarter</td>
<td>5</td>
<td><strong>PHYS 122 – Electromagnetism</strong></td>
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<tr>
<td>Spring Quarter</td>
<td>3</td>
<td><strong>MATH 123 – Intro to Visualization. &amp; CAD (VLPA)</strong></td>
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<tr>
<td>ME 307 – Introduction to Differential Equations</td>
<td>3</td>
<td><strong>Free elective</strong></td>
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<tr>
<td>VLPA/I&amp;S</td>
<td>2</td>
<td><strong>MATH 126</strong></td>
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<td>2</td>
<td><strong>VLPA/I&amp;S</strong></td>
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<tr>
<td><strong>Junior</strong></td>
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<tr>
<td>Autumn Quarter</td>
<td>5</td>
<td><strong>ME 323 – Engineering Thermodynamics</strong></td>
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<tr>
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<td>5</td>
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<td>4</td>
<td><strong>ME 354 – Mechanics of Materials Lab (W)</strong></td>
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<tr>
<td>ME 373 – Intro to System Dynamics</td>
<td>5</td>
<td><strong>IND E 315 – Probability &amp; Statistics for Engineers</strong></td>
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<tr>
<td>VLPA/I&amp;S</td>
<td>3</td>
<td><strong>ME Senior Elective</strong></td>
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<tr>
<td><strong>Senior</strong></td>
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<tr>
<td>Autumn Quarter</td>
<td>4</td>
<td><strong>ME 331 – Intro to Heat Transfer</strong></td>
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