# MSE

## Material Science Engineering Graduation Requirements
University of Washington
https://mse.washington.edu

### ENGRUD Requirement Sheet – Key

- Placement Requirements

#### Placement Periods
- Placement 1 = July 1 at end of first year
- Placement 2 = January 15 of second year
- Placement 3 = July 1 at end 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]

**One course from the following:**
- MATH 324; IND E 315; MATH 309; STAT 390

### Sciences (31cr – 35cr)

- CHEM 142 - General Chemistry (5cr)
- CHEM 152 - General Chemistry (5cr)
- PHYS 121 - Mechanics (5cr)
- PHYS 122 - Electromagnetism (5cr) [pr: MATH 125]
- PHYS 123 - Waves (5cr) [pr: MATH 126]

**Two courses from the following:**
- BIOL 180 (5cr), 200, 220; CHEM 162, 223, 237, 238, 239, 335, 336, 337; PHYS 224, 225, 226, 227, 228

### Engineering General Education Requirements (32cr)

#### Written and Oral Communication (8cr):
- English Composition (5cr)
- ENGR 231 - Introduction to Technical Communication (3cr)

#### Areas of Knowledge:
- Visual, Literary & Performing Arts - VLPA (10cr)
- Individuals & Society - I&S (10cr)
- VLPA or I&S (4cr)

#### Diversity - DIV (3cr) - (may overlap with VLPA/I&S)

### Engineering Fundamentals (24cr)

- AA 210 - Engineering Statics (4cr) [pr: MATH 126; PHYS 121]
- CEE 220 - Intro to Mechanics of Materials (4cr) [pr: AA 210]
- MSE 170 - Fundamentals of Materials Science (4cr) [pr: CHEM 142]
- AMATH 301 - Beginning Scientific Computing (4cr) [pr: either MATH 125, Q SCI 292, or MATH 135) OR CSE 142-Computer Programming I (4cr)

**Two of the following:**
- AA 260 or CHEM 325, EE 215, IND E 250, NME 220, ME 123, ME 230

### Departmental Core (53cr)

- MSE 310 - Introduction to MSE (3cr)
- MSE 311 - Integrated Undergraduate Lab.I (3cr)
- MSE 321 - Thermodynamics and Phase Equilibrium (4cr)
- MSE 331 - Crystallography and Structure (3cr)
- MSE 312 - Integrated Undergraduate Lab. II (3cr)
- MSE 322 - Kinetics and Microstructural Evolution (4cr)
- MSE 342 - Materials Processing I (3cr)
- MSE 351 - Electronic Properties of Materials (3cr)
- MSE 399 - Undergraduate Research Seminar (1cr)
- MSE 499 - Senior Project (4cr)
- ENGR 231 - Introduction to Technical Communication (3cr)
- MSE 442 - Materials Processing II (3cr)
- MSE 491 - Design in Materials Engineering I (2cr)
- VLPA or I&S (4cr)
- DIV (3cr) - (may overlap with VLPA/I&S)
- MSE 492 - Design in Materials Engineering II (2cr)

### Engineering Fundamentals (24cr)

- MSE 170 - Fundamentals of Materials Science (4cr) [pr: CHEM 142]
- AMATH 301 - Beginning Scientific Computing (4cr) [pr: either MATH 125, Q SCI 292, or MATH 135) OR CSE 142-Computer Programming I (4cr)

**Two of the following:**
- AA 260 or CHEM 325, EE 215, IND E 250, NME 220, ME 123, ME 230

### Senior Technical Electives (8-16cr)

See MSE website for list of courses

### 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 September 2018
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; CHEM 142; CHEM 152; PHYS 121; 5 credits of English Composition.

<table>
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<tr>
<th>Freshman</th>
<th>Autumn Quarter</th>
<th>Cr</th>
<th>Winter Quarter</th>
<th>Cr</th>
<th>Spring Quarter</th>
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<td>◆ MATH 124 - Calculus with Analytical Geometry I</td>
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<td>◆ MATH 125 - Calculus with Analytical Geometry II</td>
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<td>◆ MATH 126 - Calculus with Analytical Geometry III</td>
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<td>◆ CHEM 142 - General Chemistry</td>
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<td>◆ CHEM 152 - General Chemistry</td>
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<td>AMATH 301 - Beginning Scientific Computing OR CSE 142 - Programming I</td>
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<td>English Composition</td>
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<td>MSE 170 – Fundamentals of Materials Science</td>
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<td>MSE 311 - Integrated Undergraduate Lab I*</td>
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◆ = Placement Requirements
* = MSE 311, 312, 313 taken in sophomore year if ENGRUD students enter the major at P1, if ENGRUD students enter at P2 they can be taken in the junior year.

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 September 2018