This resource is for ENGRUD students who entered the UW in AUT20 or later.

Materials Science & Engineering
Graduation Requirements
University of Washington
https://mse.washington.edu

Requirement Sheet Key:
◆ = Placement Requirements;
★ = Pick one to satisfy placement
Placement: July 1 at the end of the first year

◆ E-FIG: ENGR 101 and GEN ST 199

Mathematics (24cr)
◆ MATH 124, 125, 126 - Calc w Analytic Geom. I-III (15cr)
  MATH 307 - Intro to Differential Equations (3cr)
    [pr: MATH 125]
  MATH 308 - Matrix Algebra with Applications (3cr)
    [pr: MATH 126]

One of the following: IND E 315 (3cr); MATH 309 (3cr), MATH 324 (3cr); STAT 390 (4cr)

Sciences (31-35cr)
◆ 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 121]
★ PHYS 123 - Waves (5cr)
  [pr: MATH 126 or MATH 134; PHYS 122]

Two courses from this list (see “Natural Science Reqmts”):
https://mse.washington.edu/current/undergrad/courses

Engineering General Education Requirements (32cr)
Written and Oral Communication:
◆ English Composition (5cr)
  ENGR 231 - Intro 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 course)

Engineering Fundamentals (24cr)
AA 210 - Engineering Statics (4cr)
  [pr: MATH 126, PHYS 121]
CEE 220 Intro to Mechanics of Materials (4cr)
  [pr: A A 210]
★ MSE 170 - Fundamentals of Materials Science (4cr)
  [pr: CHEM 142]
★ CSE 142 - Computer Programming I (4cr)
  OR ★ AMATH 301

8 credits from this list (see "Engineering Fund. Reqmts"):
https://mse.washington.edu/current/undergrad/courses

Departmental Core (54cr)
MSE 310 - Intro to MSE (3cr)
MSE 311 - Integrated Undergraduate Lab I (3cr)
MSE 312 - Integrated Undergraduate Lab II (3cr)
MSE 313 - Integrated Undergraduate Lab III (3cr)
MSE 321 - Thermodynamics and Phase Equilibrium (4cr)
MSE 322 - Kinetics and Microstructural Evolution (4cr)
MSE 331 - Crystallography and Structure (3cr)
MSE 333 - Materials Characterization (3cr)
MSE 342 - Materials Processing I (3cr)
MSE 351 - Electronic Properties of Materials (3cr)
MSE 352 - Functional Properties of Materials I (3cr)
MSE 362 - Mechanical Behavior of Materials I (3cr)
MSE 399 - Undergraduate Research Seminar (1cr)
MSE 431 - Failure Analysis and Durability of Materials (3cr)
MSE 442 - Materials Processing II (3cr)
MSE 491 - Design in Materials Engineering I (2cr)
MSE 492 - Design in Materials Engineering II (3cr)
MSE 499 - Senior Project (4cr)

Technical Electives (15cr)
See MSE website for list of courses to choose from.

Total credits required for graduation: 180cr

Note for students completing the NME degree option
You must complete the following courses as outlined below:

Spring of soph. year: NME 220 (4) & 221 (1)
Spring of junior year: NME 321 (1)
Spring of senior year: NME 421 (1)

Honors or accelerated sequences of chemistry, math and physics will satisfy the placement requirements.
AMATH 351 is an acceptable alternative to MATH 307.

Updated October 2020
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Honors or accelerated sequences of chemistry, math and physics will satisfy the placement requirements.
AMATH 351 is an acceptable alternative to MATH 307.

Updated October 2020

This is a sample four-year plan for ENGRUD students that prepares them to be able to request placement at the end of the first year. 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: ENGR 101; MATH 124, MATH 125, MATH 126; CHEM 142; PHYS 121; English Composition; plus one course from the list of common placement requirements.

First Year

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<tr>
<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 - Calc w Analytic Geom I</td>
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<td>MATH 125 - Calc w Analytic Geom II</td>
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<td>MATH 126 - Calc w Analytic Geom 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>PHYS 121 - Mechanics</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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Second Year

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<th>Spring Quarter</th>
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<tr>
<td>MSE 311 - Integrated UG Lab I (W)</td>
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<td>PHYS 122 - Electromagnetism</td>
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<td>MATH 307 - Differential Equations</td>
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<td>AMATH 301 - Scientific Computing</td>
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<td>VLPA/I&amp;S</td>
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<td>CEE 220 - Mechanics of Materials</td>
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<tr>
<td>OR CSE 142 - Computer Programming I</td>
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<td>AA 210 - Engineering Statics</td>
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<td>VLPA / I&amp;S</td>
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Third Year

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<td>MSE 322 - Kinetics &amp; Microstructural Evo</td>
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<td>MATH 308</td>
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<td>MSE 333 - Materials Characterization</td>
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<td>ENGR 231 - Intro to Technical Comm</td>
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<td>MSE 351 - Electron Properties of Materials</td>
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<td>MSE 321 - Thermodynamics &amp; Phase Equilibrium</td>
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<td>MSE 362 - Mech Behavior of Materials I</td>
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Fourth Year

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<td>MSE 431 - Failure Analysis</td>
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<td>MSE 492 - Materials Design II</td>
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<td>Mise Technical Elective</td>
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<tr>
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<td>VLPA / I&amp;S</td>
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<td>MSE 491 - Materials Design I</td>
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<td>MSE Technical Elective</td>
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</tbody>
</table>

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★ = Pick one to satisfy placement requirements

All MSE courses (except for 170 and the Technical Electives) must be completed in the order outlined above.