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| MSE | **Materials Science & Engineering**  **Degree Requirements**  <https://mse.washington.edu>  [askmse@uw.edu](mailto:askmse@uw.edu) | **ENGRUD Requirement Key:**  ⯁ = **Placement Requirements**  **★** = *Pick* ***one*** *to satisfy placement requirement*  **Placement:** July 1 at the end of the first year |

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| **Engineering First-year Interest Group (E-FIG)**  ⯁ **ENGR 101 (1cr)**  GEN ST 199 (1cr)  **Mathematics (26-27cr)**  ⯁ **MATH 124, 125, 126** - **Calc. w/ Analytical Geom. I-III (15cr)**  MATH 207 - Intro to Differential Equations (4cr)  [pr: MATH 125]  MATH 208 - Matrix Algebra with Applications (4cr)  One course from the following: IND E 315 (3cr), MATH 209 (4cr), MATH 224 (4cr), MATH 318 (4cr), STAT 390 (4cr)  **Sciences (31cr)**  ⯁ **CHEM 142 -** **General Chemistry (5cr)**  **★ *CHEM 152 - General Chemistry (5cr)***  [pr: CHEM 142]  ⯁ **PHYS 121 - Mechanics (5cr)**  [pr: MATH 124]  **★** ***PHYS 122 - Electromagnetism (5cr)***  [pr: MATH 125, PHYS 121]  **★ *PHYS 123 - Waves, Light, Heat (5cr)***  [pr: MATH 126, PHYS 122]  Two science electives, (“Natural Science Reqmts”):  Visit website for [a list of approved courses](https://mse.washington.edu/current/undergrad/courses%20).  **General Education Requirements (34-40cr)**  ***Written and Oral Communication***  ⯁ **English Composition (5cr)**  Writing (7cr) met by coursework in the major  ***Areas of Inquiry***  Arts & Humanities - A&H (10cr)  Social Sciences - SSc (10cr)  Additional A&H or SSc (4cr)  ***Diversity*** - DIV (5cr) (may overlap with Areas of Inquiry or W)  **Engineering Fundamentals (24cr)**  A A 210 - Engineering Statics (4cr)  [pr: MATH 126, PHYS 121]  CEE 220 - Intro to Mechanics of Materials (4cr)  [pr: A A 210]  **★ *CSE 122 - Computer Programming II*** ***(4cr)***  OR  **★ *AMATH 301 - Beginning Scientific Computing (4cr)***  **★*****MSE 170 - Fundamentals of Materials Science (4cr)***  [pr: CHEM 142]  Eight credits from MSE fundamentals list to reach 24 credits from [a list of approved courses](https://mse.washington.edu/current/undergrad/courses%20). | [**Major Core Requirements**](https://myplan.uw.edu/course/#/courses?states=N4Igwg9grgTgzgUwMoIIYwMYAsQC4TAA6IAZhDALYAiqALqsbkSBqhQA5RyPGJ20AbBMQA0xAJZwUGWuIgA7FOmyMSqAYjEhJASXlxaMKDPJLMWVes3EAjlAQwAnkkPj5Acx4gA5AFkkAKLeosQAJqiO3HjMAIyWGghaAEzx1iAAzKmJxAAsWVoArPnEAGxZAL5aBui0AfKhACriFAhRuADaAAwiAJwlnQC6Wm4YAlChCAByCgDy7AiKCDJy%2BoyG9sPyo%2BMIAEqtrjIIodKyCm3r2dpbYxMACjAOCDZw%2B3bij6FrRlcjtwgNABGqFOKwuPyqWAgAHcZvIBI47hhkEszqs8GoEpCYXCEXo7g44ApQecKtjoQAhGAwxDFEBYVBSNDmY7fDZhSSjCCIACCoQAbqgtsczCoMVYEOUQCIQND2HA8ARiNC3KEYQAJBDidxYWiMAo9JIFLQq%2Bowu7c8RoxhGpJS8pAA) **(51cr)**  MSE 311 - Integrated Undergraduate Lab I (3cr) (W)  MSE 312 - Integrated Undergraduate Lab II (3cr) (W)  MSE 313 - Integrated Undergraduate Lab III (3cr) (W)  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 493 - Intro to Design in Materials Engineering (1cr)  MSE 494 - Design in Materials Engineering I (2cr)  MSE 495 - Design in Materials Engineering II (3cr)  **Technical Electives (15cr)**  Visit department website for [a list of approved courses](https://mse.washington.edu/current/undergrad/courses%20).  **Total credits required for graduation: 180cr**  **Minor Available (30cr)**  [Visit this website](https://mse.washington.edu/admission/minor) to learn more about the minor. |

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| Materials Science & Engineering |  | **Questions? Contact ENGRUD Advising**  Email: engradv@uw.edu  Office: IEB 307  Phone: (206) 543-1770 |

This is a sample four-year plan for Materials Science & Engineering to provide ENGRUDs a framework to create their individual academic plan.

Courses required to request placement for ENGRUD students: **ENGR 101; MATH 124, 125, 126; CHEM 142; PHYS 121; English Composition; choose one: AMATH 301, CHEM 152, MSE 170, PHYS 122.**

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| **Autumn Quarter**  ⯁ **MATH 124 - Calc. w/ Analytic Geom. I**  ⯁ **CHEM 142 - General Chemistry**  ⯁ **E-FIG; ENGR 101 & GEN ST 199**  A&H / SSc | **cr**  5  5  2  3 | **Winter Quarter**  ⯁ **MATH 125 - Calc. w/ Analytic Geom. II**  **★ *CHEM 152 - General Chemistry***  ⯁ **English Composition** | **cr**  5  5  5 | **Spring Quarter**  ⯁ **MATH 126 - Calc. w/ Analytic Geom. III**  ⯁ **PHYS 121 - Mechanics**  **★ *MSE 170 - Fundamentals of Materials Science*** | **cr**  5  5  4 |
| Qtr. Total: | **15** | Qtr. Total: | **15** | Qtr.Total: | **14** |

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| **Autumn Quarter**  PHYS 122 - Electromagnetism  MSE 311 - Integrated UG Lab I (W)  AMATH 301 - Scientific Computing  OR CSE 122 - Computer Prog II  A&H / SSc | **cr**  5  3  4  4 | **Winter Quarter**  PHYS 123 - Waves  MSE 312 - Integrated UG Lab II (W)  A A 210 - Engineering Statics  A&H / SSc / DIV | **cr**  5  3  4  5 | **Spring Quarter**  MSE 313 - Integrated UG Lab III (W)  MATH 207 - Differential Equations  CEE 220 - Mechanics of Materials  A&H / SSc | **cr**  3  4  4  5 |
| Qtr. Total: | **16** | Qtr. Total: | **17** | Qtr. Total: | **16** |

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| **Autumn Quarter**  MATH 208 - Matrix Algebra  MSE 321 - Thermodynamics & Phase Equilibrium  MSE 331 - Crystallography & Structure  MSE 399 - UG Research Seminar  MSE 310 - Introudction to MSE | **cr**  4  4  3  1  3 | **Winter Quarter**  MSE 322 - Kinetics & Microstructural Evo  MSE 342 - Materials Processing I  MSE 351 - Electron Properties of Materials  Math Elective | **cr**  3  4  3  4 | **Spring Quarter**  MSE 333 - Materials Characterization  MSE 352 - Functional Prop of Materials I  MSE 362 - Mech Behavior of Materials I  Science Elective  A&H / SSc | **cr**  3  3  3  3  3 |
| Qtr. Total: | **15** | Qtr. Total: | **14** | Qtr. Total: | **15** |

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| **Autumn Quarter**  MSE 442 - Materials Processing II  MSE Technical Elective  MSE Technical Elective  MSE 493 - Intro to Design in MSE  Engineering Fundamentals Elective | **cr**  3  3  3  1  4 | **Winter Quarter**  MSE 494 - Materials Design I  MSE 431 - Failure Analysis  MSE Technical Elective  MSE Technical Elective  Engineering Fundamentals Elective | **cr**  2  3  3  3  4 | **Spring Quarter**  MSE 495 - Materials Design II  MSE Technical Elective  Science Elective  A&H / SSc | **cr**  3  3  3  5 |
| Qtr. Total: | **14** | Qtr. Total: | **15** | Qtr. Total: | **14** |

⯁ = **Placement Requirements** *All MSE courses (except for 170 and the Technical**Electives)*

**★** = *Pick* ***one*** *to satisfy placement requirements**must be completed in the order outlined above.*