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| MSE | **Materials Science & Engineering****Degree Requirements**<https://mse.washington.edu>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.eduOffice: IEB 307Phone: (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**5523 | **Winter Quarter**⯁ **MATH 125 - Calc. w/ Analytic Geom. II****★ *CHEM 152 - General Chemistry***⯁ **English Composition** | **cr**555 | **Spring Quarter**⯁ **MATH 126 - Calc. w/ Analytic Geom. III**⯁ **PHYS 121 - Mechanics****★ *MSE 170 - Fundamentals of Materials Science*** | **cr**554 |
| Qtr. Total: | **15** | Qtr. Total: | **15** | Qtr.Total: | **14** |

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| **Autumn Quarter**PHYS 122 - ElectromagnetismMSE 311 - Integrated UG Lab I (W)AMATH 301 - Scientific ComputingOR CSE 122 - Computer Prog IIA&H / SSc  | **cr**5344 | **Winter Quarter**PHYS 123 - WavesMSE 312 - Integrated UG Lab II (W)A A 210 - Engineering StaticsA&H / SSc / DIV  | **cr**5345 | **Spring Quarter**MSE 313 - Integrated UG Lab III (W)MATH 207 - Differential EquationsCEE 220 - Mechanics of MaterialsA&H / SSc | **cr**3445 |
| Qtr. Total: | **16** | Qtr. Total: | **17** | Qtr. Total: | **16** |

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| **Autumn Quarter**MATH 208 - Matrix AlgebraMSE 321 - Thermodynamics & Phase EquilibriumMSE 331 - Crystallography & StructureMSE 399 - UG Research Seminar MSE 310 - Introudction to MSE | **cr**4 4313 | **Winter Quarter**MSE 322 - Kinetics & Microstructural EvoMSE 342 - Materials Processing IMSE 351 - Electron Properties of MaterialsMath Elective | **cr**3434 | **Spring Quarter**MSE 333 - Materials CharacterizationMSE 352 - Functional Prop of Materials IMSE 362 - Mech Behavior of Materials IScience ElectiveA&H / SSc | **cr**33333 |
| Qtr. Total: | **15** | Qtr. Total: | **14** | Qtr. Total: | **15** |

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| **Autumn Quarter**MSE 442 - Materials Processing IIMSE Technical ElectiveMSE Technical ElectiveMSE 493 - Intro to Design in MSEEngineering Fundamentals Elective | **cr**33314 | **Winter Quarter**MSE 494 - Materials Design IMSE 431 - Failure AnalysisMSE Technical ElectiveMSE Technical ElectiveEngineering Fundamentals Elective | **cr**23334 | **Spring Quarter**MSE 495 - Materials Design IIMSE Technical ElectiveScience ElectiveA&H / SSc | **cr**333 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.*