This resource is for ENGRUD students who entered the UW-Seattle in AUT25.

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

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.

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.

Major Core Requirements (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.

Total credits required for graduation: 180cr

Minor Available (30cr)

Visit this website to learn more about the minor.

Honors or accelerated sequences of chemistry, math and physics will satisfy degree requirements.

Updated June 2025

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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.**

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

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

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

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

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

Honors or accelerated sequences of chemistry, math and physics will satisfy degree requirements.

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