



Materials Science and Engineering Graduation Requirements

University of Washington
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Requirement Sheet Key

◆ = Upper-Division Admission Requirements

Mathematics (24 Credits)

- ◆ Math 124 (5cr) – Calculus I
- ◆ Math 125 (5cr) – Calculus II
- ◆ Math 126 (5cr) – Calculus III
- ◆ Math 307(3cr) – Differential Equations [*pr: Math 125*]
- Math 308 (3cr) – Matrix Algebra [*pr: Math 126*]
- One course from the following list:
Math 309, Math 324, Math/Stat 390, Ind E 315
(AMATH 351/352/353 may substitute for Math 307/308/309)

Sciences (31 Credits)

- ◆ Chem 142 (5cr) – General Chemistry with lab
- ◆ Chem 152 (5cr) – General Chemistry with lab
- ◆ Phys 121 (5cr) – Mechanics with lab [*pr: Math 124*]
- ◆ Phys 122 (5cr) – Electro/Oscillatory with lab [*pr: Math 125*]
- Phys 123 (5cr) – Waves with lab [*pr: Math 126*]
- Science Electives (6cr) – See adviser for science elective list

Written & Oral Communications (12 Credits)

- ◆ English Comp (5cr) – English Composition
- HCDE 231 (3cr) – Intro to Technical Writing [*pr: Engl. Comp*]
- HCDE 333 (4cr) – Adv. Tech Writing [*pr: HCDE 231*]

Visual, Literary & Performing Arts/ Individuals & Society (VLPA/I&S) (24 Credits)

Minimum 10 credits in VLPA required.
Minimum 10 credits in I&S required.
Remaining 4 credits can be either VLPA or I&S.

Engineering Fundamentals (24 Credits)

- ◆ AMATH 301 (4cr) – Beginning Scientific Computing
- or-
- CSE 142 (4cr) – Computer Programming I
- ◆ MSE 170 (4cr) – Fund. of Material Science [*pr: CHEM 152*]
- AA 210 (4cr) – Engineering Statics [*pr: Math 126, PHYS 121*]
- CEE 220 (4cr) – Intro to Mech. Of Materials [*pr: AA 210*]
- Two Courses from the following list:
ME 123 (4cr) – Visualization and Computer Aided Design
ME 230 (4cr) – Kinematics & Dynamics [*pr: AA 210*]
- AA 260 (4cr) – Thermodynamics [*pr: CHEM 142, Math 126, PHYS 121*]
- EE 215 (4cr) – Fund. of EE [*pr: PHYS 122 & MATH 126*]
- IND E 250 (4cr) – Fundamentals of Engineering Economy
- ChemE 325 (4cr) – Energy and Entropy [*pr: CHEM 142, Math 126, PHYS 121*]

MSE Core Courses (49 Credits)

- MSE 310 (3cr) – Intro to Material Science & Engineering
- MSE 311 (2cr) – Integrated Junior Lab I
- MSE 312 (2cr) – Integrated Junior Lab II
- MSE 313 (2cr) – Integrated Junior Lab III
- MSE 321 (4cr) – Thermodynamics and Phase Equilibrium
- MSE 322 (4cr) – Kinetics and Microstructural Evolution
- MSE 331 (3cr) – Crystallography and Structure
- MSE 333 (3cr) – Characterization of Materials
- MSE 342 (3cr) – Materials Processing I
- MSE 351 (3cr) – Electron Theory
- MSE 352 (3cr) – Functional Properties of Materials I
- MSE 362 (3cr) – Mechanical Behavior of Materials I
- MSE 431 (3cr) – Principles of Physical Materials
- MSE 442 (3cr) – Materials Processing II
- MSE 491 (2cr) – Materials Design and Failure
- MSE 492 (2cr) – Design in Materials Engineering II
- MSE 499 (4–5cr) – Senior Project

Technical Electives (8 Credits)

8 credit minimum of MSE courses at the 400 level or higher. Only 1credit may be MSE 498 or 499. Please see MSE Advisor for list of approved tech. electives.

MSE (other) Elective Requirements (8 Credits)

All non-MSE engineering courses at the 400-level or higher except HCDE. Please see MSE Advisor for complete list of approved tech. electives.

Total Credits Required for Graduation (180 Credits)

Early Admission Requirements

1. Early Admission is an option for Autumn Quarter Only.
2. Students must be enrolled at UW-Seattle.
3. Math 124, 125 & 126 or equivalent.
4. 10 credits of physical sciences courses plus the accompanying lab at the level of Chem 142, 152; Phys 121, 122, 123.
5. 5 credits of English Composition.
6. 15 credits must have been completed at UW.

Application Deadlines

Early Admission – July 1st
Upper Division Admission – February 1st or July 1st



Materials Science and Engineering Sample Curriculum

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Freshman – Autumn Quarter		Freshman – Winter Quarter		Freshman – Spring Quarter	
◆ Math 124 – Calculus I	5	◆ Math 125 – Calculus II	5	◆ Math 126 – Calculus III	5
◆ Chem 142 – Chem & Lab I	5	◆ Chem 152 – Chem & Lab II	5	◆ Phys 121 – Mechanics & Lab I	5
◆ Engl 131 – English Composition	5	VLPA/I&S	5	◆ CSE 142 or AMATH 301	4
				VLPA/I&S	3
Quarter Total	15	Quarter Total	15	Quarter Total	17

Sophomore – Autumn Quarter		Sophomore – Winter Quarter		Sophomore – Spring Quarter	
◆ Math 307 – Diff Equations	3	Phys 123 – Waves & Lab I	5	Math Elective	3
◆ Phys 122 – Electro & Lab I	5	◆ MSE 170 – Materials Science	4	Engineering Elective	4
HCDE 231 – Technical Writing	3	Math 308 – Matrix Algebra	3	Engineering Elective	4
AA 210 – Statics	4	CEE 220 – Mech. of Materials	4	VLPA/I&S	4
VLPA/I&S	2				
Quarter Total	17	Quarter Total	16	Quarter Total	15

Junior – Autumn Quarter		Junior – Winter Quarter		Junior – Spring Quarter	
MSE 310 – Intro to MS&E	3	MSE 322 – Kinetics & Microstruc.	4	MSE 362 – Mech Behavr of Mat	3
MSE 321 – Thermo & Phase Eq.	4	MSE 351 – Electron Theory	3	MSE 333 – Characterization of Mat	3
MSE 331 – Crystalliztn. & Structure	3	MSE 342 – Materials Processing I	3	MSE 352 – Functional Prop. of Mat	3
MSE 311 – Integrated Junior Lab I	2	MSE 312 – Integrated Junior Lab II	2	MSE 313 – Integrated Junior Lab III	2
		*MSE 499 – Senior Project	1	MSE Science Elective	3
		HCDE 333- Adv. Technical Writing	4		
Quarter Total	12	Quarter Total	17	Quarter Total	14

Senior – Autumn Quarter		Senior – Winter Quarter		Senior – Spring Quarter	
MSE 442 – Materials Processing II	3	MSE 491 – Material Design I	2	MSE 492 – Material Design II	2
MSE 431 – Principles of Phys Mat.	3	MSE 499 – Senior Project	1	MSE 499 – Senior Project	1
MSE 499 – Senior Project	1	MSE Technical Elective	2	MSE Technical Elective	3
MSE Science Elective	3	MSE Technical Elective	3	VLPA/I&S	5
		VLPA/I&S	5		
Quarter Total	10	Quarter Total	13	Quarter Total	11

Bold face courses are required for upper-division admission

See MSE Planbook for list of technical electives

*MSE 499 is credit variable, (4 total required)

For more information contact:

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