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

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:
IND E 315 (3cr) - Prob. & Statistics for Engrs. [pr: Math 307]
STAT 390 (4cr) - Stat. Methods in Engr. & Science
MATH 324 (3cr) - Adv. Multivariable Calculus [pr: Math 126]

Natural Sciences (31 Credits)
◆ CHEM 142 (5cr) - General Chem I with Lab
◆ CHEM 152 (5cr) - General Chem II with Lab
◆ PHYS 121 (5cr) - Mechanics with Lab I [pr: Math 124]
◆ PHYS 122 (5cr) - Electro/Oscillatory with Lab II
PHYS 123 (5cr) - Waves with Lab III
Two courses from the following:
BIOL 180 (5cr), 200 (5cr), 220 (5cr);
CHEM 162/163/165 (5cr), 223 (4cr), 224 (4cr), 237(4cr), 238 (4cr), 239 (4cr), 335 (4cr), 336 (4cr), 337 (4cr);
PHYS 224 (3cr), 225 (3cr), 226 (3cr), 227 (4cr), 228 (4cr)

Written & Oral Communications (12 Credits)
◆ English Comp (5cr) - English Composition
ENGR 231 (3cr) - Intro to Technical Writing
Note: Additional required writing credits are built into major core courses.

Visual, Literary & Performing Arts/ Individuals & Society (VLPA/I&S) (24 Credits)
10 credits of VLPA
10 credits of I&S
4 credits of VLPA or I&S
3 credits of Diversity (DIV)
(DIV can overlap with VLPA or I&S)

Engineering Fundamentals (24 Credits)
◆ AMATH 301 (4cr) - Beg. Scientific Computing [pr: Math 125]
-CSE 142 (4cr) - Computer Programming I
◆ MSE 170 (4cr) - Fund. of Materials Science [pr: Chem 152]
AA 210 (4cr) - Engineering Statics [pr: Math 126, Phys 121]
CEE 220 (4cr) - Mechanics of Materials [pr: AA 210]
Two of the following (8cr):
AA 260 (4cr) - OR- CHEM E 325 (4cr), EE 215 (4cr), IND E 250 (4cr),
NME 220 (4cr) [NOT eligible as elective for NME students],
ME 123 (4cr), ME 230(4cr)

MSE Core Courses (53 Credits)
MSE 310 (3cr) - Intro to Materials Science & Engineering
MSE 311 (3cr) - Integrated Undergraduate Lab I
MSE 312 (3cr) - Integrated Undergraduate Lab II
MSE 313 (3cr) - Integrated Undergraduate Lab III
MSE 321 (4cr) - Thermodynamics and Phase Equilibrium
MSE 322 (4cr) - Kinematics and Microstructural Evolution
MSE 331 (3cr) - Crystallography and Structure
MSE 333 (3cr) - Materials Characterization
MSE 342 (3cr) - Materials Processing I
MSE 351 (3cr) - Electronic Properties of Materials
MSE 352 (3cr) - Functional Properties of Materials I
MSE 362 (3cr) - Mechanical Behavior of Materials I
MSE 431 (3cr) - Failure Analysis & Durability of Materials
MSE 442 (3cr) - Materials Processing II
MSE 491 (2cr) - Design in Materials Engineering I
MSE 492 (2cr) - Design in Materials Engineering II
MSE 499 (4cr) - Senior Project

MSE Technical Electives (16 Credits)
MSE 400-level electives; Up to 8 credits from other Technical Electives list may be substituted. See website for list of approved technical electives.

NME Option requirements differ. See website for details.

Total Credits Required for Graduation (180 Credits)

Early Admission Requirements
1. Early Admission is an option for Autumn Quarter only.
2. Applicants must be current first-year students.
3. Students must be enrolled at UW Seattle.
4. MATH 124, 125, & 126 or equivalent.
5. 10 credits of physical sciences + accompanying lab:
CHEM 142, 152 [preferred]
PHYS 121, 122, 123
6. 5 credits of English Composition.
7. 15 of the above credits must have been completed at UW.

Application Deadlines
Autumn 2018 admission: Early and Upper-Division - July 1st
Autumn 2019 admission and beyond: April 5th annually

Last revised January 2018
# Materials Science & Engineering Sample Curriculum

**This is a sample four-year plan. It is intended to provide a framework for students to reference as they create their own individual academic plan.**

### Freshman - Autumn Quarter
- **MATH 124** - Calculus I 5
- **CHEM 142** - Chem & Lab I 5
- **English Composition** 5

### Freshman - Winter Quarter
- **MATH 125** - Calculus II 5
- **CHEM 152** - Chem & Lab II 5
- **VLPA/I&S**

### Freshman - Spring Quarter
- **MATH 126** - Calculus III 5
- **AMATH 301** - Sci. Computing 4
- **CSE 142** - Programming I 4
- **MSE 170** - Materials Science 4

### Sophomore - Autumn Quarter
- **MATH 307** - Diff. Equations 3
- **PHYS 121** - Mechanics & Lab I 5
- **ENGR 231** - Technical Writing 4
- **Engineering Elective** 4

### Sophomore - Winter Quarter
- **PHYS 122** - Electro & Lab II 5
- **MATH 308** - Matrix Algebra 3
- **AA 210** - Engineering Statics 4
- **Science Elective** 3

### Sophomore - Spring Quarter
- **PHYS 123** - Waves & Lab III 5
- **CEE 220** - Mechanics of Materials 5
- **Math Elective** 3
- **VLPA/I&S** 5

### Junior - Autumn Quarter
- **MSE 310** - Introduction to MSE 3
- **MSE 311** - Integrated Undergrad Lab I 3
- **MSE 321** - Thermo & Phase Equil. 4
- **MSE 331** - Crystallogr & Structure 3
- **ENGR 231** - Technical Writing 3

### Junior - Winter Quarter
- **MSE 312** - Integrated Undergrad Lab II 3
- **MSE 322** - Kinetics & Microstructure 4
- **MSE 342** - Materials Processing I 3
- **MSE 351** - Electron Properties Mat. 3
- **MSE 399** - UG Research Seminar 1

### Junior - Spring Quarter
- **MSE 313** - Integrated Undergrad Lab III 3
- **MSE 333** - Characterization of Mat. 3
- **MSE 352** - Funct. Prop. of Mat. I 3
- **MSE 362** - Mech. Behav. of Mat. I 3
- **VLPA/I&S** 5

### Senior - Autumn Quarter
- **MSE 442** - Materials Processing II 3
- **MSE 491** - Materials Design I 2
- **MSE 499** - Senior Project 1
- **MSE Technical Elective** 4
- **MSE Technical Elective** 3

### Senior - Winter Quarter
- **MSE 431** - Failure Analysis 3
- **MSE 492** - Materials Design II 2
- **MSE 499** - Senior Project 1
- **MSE Technical Elective** 3
- **Engineering Elective** 4

### Senior - Spring Quarter
- **MSE 499** - Senior Project 2
- **MSE Technical Elective** 3
- **MSE Technical Elective** 3
- **Science Elective** 3
- **VLPA/I&S** 5

**Bold face courses are required for upper-division admission.**

*For early admission students, MSE 311, 312, and 313 will be completed during Sophomore year.

For students completing the NME option, they must enroll in NME 220+221 Spring Sophomore year, NME 321 Spring Junior year, and NME 421 Spring Senior year.

See MSE website for approved technical electives list, NME option major requirements, and any updates.

**For more information, contact:**

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