

## Materials Science & Engineering

(updated June 2021)

<b>Freshman</b>	Semester One	Semester Two
	CHEM 1127Q or 1147Q: General Chemistry (4 credits)	CHEM 1128Q or 1148Q: General Chem (4 credits)
	MATH 1131Q or 1151Q: Calculus I (4 credits)	MATH 1132Q or 1152Q: Calculus II (4 credits)
	ENGR 1000: Orientation to Engineering (1 credit)	ENGR 1166: Foundations of ENGR (3 credits)
	CSE 1010: Intro. to Computing for ENGR (3 credits)	Ged Ed: Content Area 1 (3 credits)
	ENGL 1007/10/11 or 2011: Seminar in Academic Writing (4 credits)	Gen Ed: Content Area 2 (3 credits)
	<b>16 credits</b>	<b>17 credits</b>

<b>Sophomore</b>	Semester One	Semester Two
	PHYS 1501Q: Physics for ENGR I (4 credits)	PHYS 1502Q: Physics for Engineers II (4 credits)
	MATH 2110Q: Multivariable Calculus (4 credits)	MATH 2410Q: Elem Diff. Equations (3 credits)
	PHIL 1104: Philosophy and Social Ethics (3 credits)	MSE 2002: Introduction to Structure, Properties, and Processing of Materials II (3 credits)
	CE 2110: Applied Mechanics I (3 credits)	MSE 2053: Materials Characterization and Processing Laboratory (1 credit)
	MSE 2001: Introduction to Structure, Properties, and Processing of Materials I (3 credits)	Gen Ed: Content Area 4 (3 credits)
		Gen Ed: Content Area 2 (3 credits)
	<b>17 credits</b>	<b>17 credits</b>

<b>Junior</b>	Semester One	Semester Two
	MSE 3001: Applied Thermodynamics of Materials (4 credits)	MSE 3002: Transport Phenomena (4 credits)
	MSE 3003: Phase Transformation, Kinetics & Applications (3 credits)	MSE 3004: Mechanical Behavior of Materials (3 credits)
	MSE 3055: Materials Processing & Microstructures Laboratory (1 credit)	MSE 3056: Mechanical Modelling (2 credits)
	*Professional Elective (3 credits)	*Professional Elective (3 credits)
	*Technical Elective (3 credits)	*Technical Elective (3 credits)
	General Ed: Content Area 4 (3 credits)	
	<b>17 credits</b>	<b>15 credits</b>

<b>Senior</b>	Semester One	Semester Two
	MSE 4001: Elect. & Mag. Prop. of Mat (3 credits)	MSE 4902W: Capstone Design Project II (3 credits)
	MSE 4003: Materials Characterization (3 credits)	MSE 4004: Thermal/Mechanical Processing of Materials (3 credits)
	MSE 4901W: Capstone Design Project I (3 credits)	*Professional Elective (3 credits)
	*Professional Elective (3 credits)	*Professional Elective (3 credits)
	*Technical Elective (3 credits)	*Free Elective (3 credits)
	<b>15 credits</b>	<b>15 credits</b>

**\*Recommended Professional Electives: 15 credits.** Any 3000 or 4000 level MSE elective course, BME 3700 or 4701, CHEG 3156, or ME 3217 or 3228. Up to three credits of MSE 4097 or 4996 and up to three credits of MSE 4099 can satisfy the Professional Elective requirement. Students may take multiple instances of MSE 4095 or 4098, which all may count as Professional Electives in MSE, provided each instance covers a different topic. Students with GPA of 3.2 or greater may elect letter-grade graduate courses. Any substitutions must be approved by the Director of Undergraduate Studies and the School of Engineering Undergraduate Dean.

**\*Recommended Technical Electives: 9 credits** selected from all 2000, 3000, and 4000 courses in the basic sciences, mathematics and in any engineering discipline other than Materials Science and Engineering are accepted as technical electives. At least 3 credits must be selected from the basic sciences or mathematics: Mathematics (MATH), Biological Sciences (BIOL), Chemistry (CHEM), Molecular & Cell Biology (MCB), Physics (PHYS), and Statistics (STAT).

**\*Free elective: 3 credits,** selected from courses at any level in any discipline at student's discretion.

**Total Credits: 129**