

Degree Plan in Materials Science and Engineering

FRESHMAN YEAR (Common Engineering First Year)

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
MATH 151 - Eng. Math I	4	MATH 150 ¹	MATH 152 - Eng. Math II	4	MATH 151
CHEM 119 - Fund. Chem I *	4		CHEM 120 - Fund. Chem II	4	CHEM 119, or CHEM 107/117
ENGL 104 - Comp & Rhetoric	3		PHYS 206 - Newtonian Mechanics for Students in Engineering and Science	3	MATH 151 or 171, PHYS 216 ^{cr}
ENGR 102 - Engineering Lab I - Computation	2	MATH 151 ^{cr}	ENGR 216 (or PHYS 216) - Experimental Physics and Engineering Lab II: Mechanics	2	MATH 151 or 171, ENGR 102, PHYS 206 ^{cr}
UCC Elective	3		UCC Elective	3	
	16			16	

SOPHOMORE YEAR

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
PHYS 207 - Electricity and Magnetism for Students in Engineering and Science	3	PHYS 206, ENGR/PHYS 216, MATH 152 or 172, ENGR/PHYS 217 ^{cr}	MSEN 380 - Communicating Mat Sci Eng ^w	1	MSEN 301 ^{cr}
ENGR 217 (or PHYS 217) - Experimental Physics and Engineering Lab III - Electricity and Magnetism	2	PHYS 206, ENGR/PHYS 216, MATH 152 or 172, PHYS 207 ^{cr}	MSEN 210 [H] - Thermodynamics of Materials	3	MSEN 201 ^{cr} , MATH 152 ^{cr}
MATH 251 - Eng Math III	3	MATH 152	MSEN 250 [H] - Soft Matter	3	MSEN 201 ^{cr} , CHEM 120
MSEN 201 - Fundamentals of Materials	3	PHYS 206, CHEM 119 or CHEM 107	MSEN 301 - Unified Mat. Lab 1	3	MSEN 210 ^{cr} , MSEN 260 ^{cr}
MSEN 205 [H] - Materials in Society	2	MSEN 201 ^{cr}	MSEN 260 - Structure of Materials	3	MSEN 201 ^{cr}
UCC Elective	3		MSEN 281 - Materials Seminar	1	MSEN 201 ^{cr}
	16			14	

JUNIOR YEAR

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
MATH 307 - Mathematical Methods for Material Scientists and Engineers	3	MATH 251	MSEN 330 [H] - Numerical Methods for Mater Sci Eng	3	MSEN 305, MSEN 320, MATH 307
MSEN 305 - Kinetics of Materials	3	MSEN 210	MSEN 400 - Design Analys. Mater Exp	3	MSEN 302
MSEN 302 - Unified Mat. Lab 2 ^w	3	MSEN 320 ^{cr} , MSEN 301	MSEN Tech Elective 1	3	
MSEN 320 [H] - Deform. and Failure Mech. in Eng. Materials	3	MSEN 260	MSEN 360 - Materials Characterization	3	MSEN 250, MSEN 260
UCC Comm. Elective (COMM 205 or ENGL 210)	3		MSEN 325 [H]- Functional Materials Properties	3	MSEN 260
MSEN 399 - High Impact Experience for Materials Engineers	0	MSEN 205, MSEN 281	UCC Elective	3	
UCC Elective	3				
	18			18	

SENIOR YEAR

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
UCC Elective	3		MSEN 402 - Materials Research Design II	3	MSEN 401
MSEN 401 - Materials Research Design I	3	MSEN 205, MSEN 281, MSEN 400	MSEN Tech Elective 3	3	
MSEN 410 [H] - Materials Processing	3	MSEN 250, MSEN 305, MSEN 320	Specialty Elective 2	3	
MSEN Tech Elective 2	3		Specialty Elective 3	3	
Specialty Elective 1	3		UCC Elective	3	
	15			15	

* CHEM 107/CHEM 117 is accepted in place of CHEM 119.

^{cr} co-rec¹ or placement exam^w writing intensive class

[H] Honors Designation

Engineering First Year	31 sch
UCC Electives	21 sch
MSEN Core	58 sch
MSEN Tech Electives	9 sch
Specialty Electives	9 sch
TOTAL	128 sch