

## 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 <sup>1</sup>	MATH 152 - Eng. Math II	4	MATH 151
CHEM 101/111 - Fund. Chem I *	4		CHEM 102/112 - Fund. Chem II	4	CHEM 101/111, 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 <sup>cr</sup>
ENGR 102 - Engineering Lab I - Computation	2	MATH 151 <sup>cr</sup>	ENGR 216 (or PHYS 216) - Experimental Physics and Engineering Lab II: Mechanics	2	MATH 151 or 171, ENGR 102, PHYS 206 <sup>cr</sup>
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 <sup>cr</sup>	UCC Comm. Elective (COMM 205 or ENGL 210)	3	
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 <sup>cr</sup>	MSEN 210 [H] - Thermodynamics of Mater.	3	MSEN 201 <sup>cr</sup> , MATH 152 <sup>cr</sup>
MATH 251 - Eng Math III	3	MATH 152	MSEN 250 [H] - Soft Matter	3	MSEN 201 <sup>cr</sup> , CHEM 102
MSEN 201 - Fundamentals of Materials	3	PHYS 206, CHEM 101 or CHEM 107	MSEN 301 - Unified Mat. Lab 1 <sup>w</sup>	3	MSEN 210 <sup>cr</sup> , MSEN 260 <sup>cr</sup>
MSEN 205 [H] - Materials in Society	2	MSEN 201 <sup>cr</sup>	MSEN 260 - Structure of Materials	3	MSEN 201 <sup>cr</sup>
UCC Elective	3		MSEN 281 - Materials Seminar	1	MSEN 201 <sup>cr</sup>
	16			16	

### JUNIOR YEAR

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
MATH 308 - Differential Equations	3	MATH 251	MSEN 330 [H] - Num Mthds for Mater Sci Eng	3	MSEN 305, MSEN 320, MATH 308
MSEN 305 - Kinetics of Materials	3	MSEN 210	MSEN 400 - Design Analys. Mater Exp	3	MSEN 302
MSEN 302 - Unified Mat. Lab 2 <sup>w</sup>	3	MSEN 320 <sup>cr</sup> , 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
MSEN 380 - Communicating Mat Sci Eng	1	COMM 205, or ENGL 210	MSEN 325 [H] - Functional Materials Prop	3	MSEN 260
MSEN 399 - High Impact Experience for Materials Engineers	0	MSEN 205, MSEN 281	UCC Elective	3	
UCC Elective	3			18	
	16			18	

### SENIOR YEAR

Fall	sch	Pre/Co-reqs	Spring	sch	Pre/Co-reqs
ENGR 482 - Ethics & Eng <sup>w</sup>	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 101/111.

<sup>cr</sup> co-rec<sup>1</sup> or placement exam<sup>w</sup> writing intensive class<sup>c</sup> communications intensive class

[H] Honors Designation

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