

*MATERIALS SCIENCE AND ENGINEERING OPTION
(within the Engineering Science Curriculum)*

<u>First Semester</u>			<u>Second Semester</u>		
APMA 111	Single Variable Calculus	4	APMA 212	Multivariate Calculus	4
CHEM 151	Chem for Engineers	3	PHYS 142E	General Physics I	4
CHEM 151L	Chem for Engineers Lab	1	CS 101	Intro to Computer Science	3
ENGR 162	Intro to Engineering	4	_____	Science Elective I ¹	3
TCC 101	Lang Comm & Tech Soc	<u>3</u>	_____	HSS Elective ²	<u>3</u>
		15			17
<u>Third Semester</u>			<u>Fourth Semester</u>		
APMA 213	Ordinary Differential Equations	4	_____	Math Elective I ⁴	3
PHYS 241E	General Physics II	3	_____	Science Elective II ⁵	3
PHYS 241L	General Physics II Lab	1	_____	Science Elective II Lab ⁵	1
MSE 209	Intro Sci & Engr of Materials	3	_____	Engineering Science Elective ³	3
_____	Engineering Science Elective ³	3	MSE 310L	MSE Lab or Tech. Elective 2xx⁵	3
_____	HSS Elective ²	<u>3</u>	_____	TCC 2xx/3xx Elective	<u>3</u>
		17			16
<u>Fifth Semester</u>			<u>Sixth Semester</u>		
_____	Advanced Math/CS Elective II ⁴	3	_____	Advanced Math/CS Elective II ⁴	3
_____	Adv Natural Science ⁶	3	_____	Adv Natural Science ⁶	3
MSE 301L	Corrosion Engineering Lab	1	MSE 304L	Structure/Props of Matls. Lab	1
	(Adv.Natural Science Lab Elect. ⁶)			(Adv.Natural Science Lab Elect. ⁶)	
MSE 305	Phase Diag. & Kinetics	3	MSE 304	Structure/Props of Polymers	3
	(Tech. Elective ⁷)			(Tech. Elective ⁷)	
MSE 301	Corrosion (Tech. Elective⁷)	3	MSE 306	Structure/Props of Metals	3
				(Tech. Elective ⁷)	
_____	HSS Elective ²	<u>3</u>	_____	Unrestricted Elective ⁹	<u>3</u>
		16			16
<u>Seventh Semester</u>			<u>Eighth Semester</u>		
TCC 401	West Tech & Culture	3	TCC 402	The Engineer in Society	3
ENGR 497	Struc./Prop. of Ceramics & Comp	3	MSE 524	Modeling in Matls. Science	3

	(Tech. Elective ⁷)				(Tech. Elective ⁷)	
ENGR 499	Electrical/Optical Prop. [cross-	3		MSE 532	Deformation & Frac. of Matls.	3
	listed as EE 407] (Tech. Elective ⁷)				(Tech. Elective ⁷)	
	(Tech. Elective ⁷)	3		ENGR 499	Senior Thesis Project /Lab	1
					(Advanced Project ⁸)	
	Unrestricted Elective ⁹	<u>3</u>			Unrestricted Elective ⁹	3
		15			Tech. Elective ⁷	<u>3</u>
						16

128 Semester Hours - Minimum required for graduation.

1. Science Elective I must be selected from: BIOL 201, BIOL 202, CHEM 152, MSE 209, PHYS 242.

2. HSS Electives are selected from the approved list available in A122 Thornton Hall.

3. Engineering Science Electives are to be selected from the following courses: MAE 210, CHE 202, EE 203, MAE 202, MAE 231, CE 206, MAE 232, CE 207, MSE 209.

4. Math Elective I: APMA 314 is recommended or a 200 level or above course in mathematics. Advanced Math/CS Elective II: Two advanced mathematics courses, 300 level or above, in SEAS or CLAS or on advanced level mathematics and one 200 or above level computer science course. Mathematical modeling courses in the various departments of SEAS can be used as approved by advisor.

5. Technical Elective 2xx and Science Elective II are to be selected from the following list: ASTR 211, ASTR 212, BIOL 201, BIOL 203, BIOL 202, BIOL 204, CHEM 152, 152L, CHEM 210, CHEM 222, CHEM 241, CHEM 241L, CHEM 242, CHEM 242L, CHEM 252, CHEM 281, CHEM281L, CHEM 282, CHEM 282L, EVSC 280, EVSC 280L, MSE 209, PHYS 242, PHYS 242L, PSYC 221. The 4 course sequence for science majors, CHEM 181/181L, CHEM 182/182L, CHEM 281/281L, CHEM 282,282L may be taken to replace CHEM 151/151L, two Science Electives and the 2xx Technical Elective. The course sequence for science majors PHYS 151, 152, 251, 252, and labs PHYS 221,222 may replace PHYS 142E, PHYS 241E/241L, and two science electives.

6. Advanced sciences are 300 level or above courses in Astronomy, Biology, Chemistry, Environmental Sciences, or Physics. The course must have mathematics or science prerequisites. For students with minors in engineering other than the Materials Science Minor, 300 level courses in Materials Science can be used. Two credits of advanced laboratory work should be included. The science elective and technical electives should be used to obtain the equivalent of a science minor. Only one minor can be listed on a transcript.

7. Advanced technical electives should be chosen from 300-400 level Science, Mathematics or Engineering courses for science and engineering majors (i.e., are not open to non-science students). At least two of the technical electives must be 400 level, or above, courses in SEAS. The technical electives must be chosen to include an approved minor in SEAS.

8. Students are expected to define a research project to be completed in the fourth year. The advanced project courses are graded research courses supplementing the student's thesis work.

9. Any graded course in the university.

Dated: 11/18/99

Materials Science Minor

Six courses constitute a minor.

Required courses: MSE 305 and MSE 310L.

Select one of the following: MSE 209 or MAE 353

Select three of the following: MSE 301

MSE 304

MSE 306

ENGR 497

ENGR 499

MSE 524

MSE 532

Students studying civil engineering, applied mechanics, mechanical and aerospace engineering, chemical engineering, and systems engineering should consider MSE 301, MSE 306, MSE 524, and MSE 532.

Students studying electrical engineering, computer science, and systems engineering should consider MSE 304, ENGR 497, ENGR 499, or MSE 524.

Although not required for the minor, the laboratories associated with courses MSE 301 and MSE 306 are recommended.