

Engineering Science/Materials Science and Engineering OPTION: April 5, 2008

Total credits: 127

First Semester

APMA 111	Calculus II	4
CHEM 151	Intro Chemistry for Engineers I	3
CHEM 151L	Intro Chemistry Lab	1
ENGR 162	Intro to Engineering	4
STS 101	Engineering, Technology, Soc.	3
		15

Second Semester

APMA 212	Multivariate Calculus	4
PHYS 142E	General Physics I	3
PHYS 142W	Physics Workshop	1
CS 101	Intro to Programming	3
	Science elective I ⁽¹⁾	3
	HSS elective ⁽²⁾	3
		17

Third Semester

APMA 213	Ordinary Differential Equations	3
PHYS 241E	General Physics II	3
PHYS 241W	Physics Workshop	1
MSE 209	Introduction to Materials Science	3
	Secondary Minor Elective ⁽³⁾	3
	HSS elective ⁽²⁾	3
		16

Fourth Semester

	Advanced Math/CS elective ⁽⁴⁾	3
MSE 306	Structure and Defects of Materials	3
MSE 310	Materials Science Investigations ⁽⁵⁾	3
	Science elective II ⁽⁶⁾	4
	HSS elective ⁽²⁾	3
		16

Fifth Semester

MSE 305	Thermo and Kinetics of Matls	3
MSE 367	Appl. Elec, Magnetic, Optical Matls	3
	Secondary Minor Elective ⁽³⁾	3
	Secondary Minor Elective ⁽³⁾	3
	Unrestricted elective ⁽⁷⁾	3
		15

Sixth Semester

MSE 301	Corrosion, Fuel Cells, Batteries	3
MSE 421	Processing of Advanced Mater.	3
	Secondary Minor Elective ⁽³⁾	3
	Secondary Minor Elective ⁽³⁾	3
STS 2xx/3xx	STS 2xx/3xx elective	3
	Unrestricted elective ⁽⁷⁾	3
		18

Seventh Semester

STS 401	Western Technology and Culture	3
MSE 452	Advanced MSE project ⁽⁸⁾	3
MSE xxx	MSE elective ⁽⁹⁾	3
	Secondary Minor Elective ⁽³⁾	3
	Unrestricted elective ⁽⁷⁾	3
		15

Eighth Semester

STS 402	The Engineer, Ethics and Society	3
MSE 452	Advanced MSE project ⁽⁸⁾	3
MSE 432	Origins of Mechanical Behavior	3
MSE xxx	MSE elective ⁽⁹⁾	3
	Unrestricted elective ⁽⁷⁾	3
		15

(1) Science elective I: Chosen from ECE 200; BIOL 201, 202; MSE 209; CHEM 152; PHYS 252; or advisor approved 2xx SEAS technical elective.

(2) HSS electives are chosen from the approved list available in A122 Thornton Hall.

(3) Secondary minor electives must be chosen so as to earn an approved technical minor in SEAS, mathematics, or a natural science. Once minor requirements are satisfied, any 2xx, 3xx, or 4xx technical SEAS, mathematics, or natural science course is acceptable.

(4) Advanced math/CS elective: 3xx-level or higher mathematics courses in SEAS or CLAS; or one one 2xx-level or higher course in computer science.

(5) MSE 310 Materials Science Investigations partially fulfills the laboratory requirements of the ES major.

(6) Science Elective II: Either CHEM 152 with lab or PHYS 252 with workshop is required.

(7) Unrestricted electives may be chosen from any graded course in the University except mathematics courses below MATH 131, including STAT 110 and STAT 112, and courses that substantially duplicate others used for the student's degree.

(8) Advanced projects is a graded research, independent study, or design course intended to supplement the student's thesis work. Individual or group projects are possible. Engineering in Context (EIC) courses may substitute, upon advisor approval.

(9) MSE electives are chosen from MSE 352, 455, 492 (Atomistic Simulations), CHE 449 (Polymers), BIOM 414 (Biomaterials).