R2144

Engineering Science Program
Area of Concentration: Engineering Physics
Sample Curriculum

First Term			Second Term		
		Units			Units
CHEM 0960	Gen. Chem. For Engr.1	3	CHEM 0970	Gen. Chem. For Engr.2	3
MATH 0220	Anal. Geometry & Calc. 1	4	MATH 0230	Anal. Geometry & Calc. 2	4
PHYS 0174	Phys. For Sci. & Engr. 1	4	PHYS 0175	Phys. For Sci. & Engr. 2	4
ENGR 0011	Intr. Engr. Analysis	3	ENGR 0012	Engr. Computing	3
	H/SS Elective 1	3		H/SS Elective 2	3
ENGR 0081	Freshman Seminar	0	ENGR 0082	Freshman Seminar	0
		17			17
Third Term			**Fourth Term**		
MATH 0240	Anal. Geom. & Calc. 3	4	MATH 0290	Differential Equations	3
MATH 0280	Matrices and Lin. Algebra	3	ECE 0041	Linear Circ. & Systems 2	3
PHYS 0219	Lab. Phys. for Sci. & Engr.	2	ECE 0257	Anal. & Des. Elect. Circ.	3
ECE 0031/ MEMS 0031	Linear Circ. & Systems 1	3	ECE 1201	Elect. Meas. & Circ. Lab	3
ENGR 0022	Mat. Structure & Prop.	3	MEMS 0051[1]	Intro. To Thermo.	3
	H/SS Elective 3	3	MEMS 1085	Departmental Seminar	0
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		18			15
Fifth Term			**Sixth Term**		
PHYS 0477	Thermal Phys, Rel., & QM	4	PHYS 0481	Prin. Modern Physics 2	3
	Upper Level Physics	3	ECE 1247	Semicon. Device Theory	3
	Upper Level Physics	3	ECE 1552	Signals & Systems Anal.	3
MEMS 1053	Struct. of Crystals & Diff.	3	MEMS 1063	Ph. Transf. & Micro. Evol.	3
MEMS 1059	Ph. Eq. Multi-Comp. Syst.	3		H/SS Elective 4	3
MEMS 1085	Departmental Seminar	0	MEMS 1085	Departmental Seminar	0
		16			15
Seventh Term			**Eighth Term**		
	Upper Level Physics	3		Upper Level Mathematics	3
ECE 1266	Appl. Fields & Waves	3	ECE 1212	Elect. Circ. Design Lab	3
MEMS 1058[2]	Electromag. Prop. Of Mat.	3		Senior Design*	3
	Senior Design*	3		Program Elect. 2	3
	Program Elect. 1	3		H/SS Elective 6	3
	H/SS Elective 5	3	MEMS 1085	Departmental Seminar	0
MEMS 1085	Departmental Seminar	0			
		18			15

[1] or PHYS 1341
[2] or MEMS 1010, MEMS 1057, MEMS 1070
* at least one senior design course offered by one of the other SSOE engineering programs is required; the second course may be a senior project arranged with a faculty mentor. Students wishing to complete a two-term project with a faculty mentor may request approval for the second term to count as a program elective.
Upper Level Physics: Physics courses with course numbers > 1000
Upper Level Mathematics: Mathematics courses with course numbers > 1000
Courses in red constitute a minor in Physics

131 total credits
51 credits minimum of Engineering, 53 credits minimum of Math/Science

Program Electives

There are two program electives in the Engineering Physics curriculum. It is recommended that students planning to pursue graduate studies in physics take the honors quantum mechanics sequence in the Physics department:

PHYS 1370: Introduction to Quantum Physics 1
PHYS 1371: Introduction to Quantum Physics 2

Note: PHYS 1331 and 1351 are prerequisites for PHYS 1370.

Students can also satisfy the program elective requirement by choosing a two-course sequence that creates in-depth exposure to a topic area. Example sequences of courses include the following:

ECE 1232: Introduction to Lasers and Optical Electronics
ECE 1238: Digital Electronics

MEMS 1010: Experimental Methods in Materials Science and Engineering
MEMS 1101: Ferrous Physical Metallurgy

ENGR 0240 Nanotechnology and Nano-Engineering
ENGR 0241 Fabrication and Design in Nanotechnology