CURRICULUM FOR ENGINEERING PHYSICS WITH CONCENTRATION IN ELECTRICAL ENGINEERING

(126-128 Credits)

PROFESSIONAL ORIENTATION (1 Cr. Required) *Selected from the following*		
Introduction to AE & ME	AENG/MENG 1001	1
Biomedical Engineering Orientation	BME 1000	1
Introduction to ECE	ECE 1001	1
Introduction to Physics	PHYS 1110	1
BASIC SCIENCE & MATHEMATICS (46 Cr.) (ABET Minimum = 32 Cr.)		
General Chemistry I/Lab	CHEM 1110/1115	4
Calculus I	MATH 1510	4
Calculus II	MATH 1520	4
Calculus III	MATH 2530	4
Differential Equations I	MATH 3550	3
Advanced Mathematics for Engineers	MATH 3270	3
Probability & Statistics for Engineers	MATH 4880	3
Numerical Analysis	MATH 3240	3
Engineering Physics I/Lab	PHYS 1610/1620	4
Engineering Physics II/Lab	PHYS 1630/1640	4
Modern Physics/Lab	PHYS 2610/2620	4
Classical Mechanics	PHYS 3110	3
Quantum Mechanics	PHYS 4610	3
		46
ENGINEERING PHYSICS & ENGINEERING TOPICS (50-51 Cr.) (ABET Minimum = 48 Cr.)		
Intro. to CS: Scientific Programming	CSCI 1060	3
Engineering Circuits I	ECE 2101	3
Engineering Circuits II	ECE 2102	3
Electrical Science Lab	ECE 2103	1
Semiconductor Devices	ECE 3130	3
Electromagnetic Fields	ECE 3140	3
ECE Design I, II (Senior Project)	ECE 4800, 4810	6
Optics/Lab	PHYS 3310/3320	4
Thermodynamics & Statistical Mechanics	PHYS 3410	3
2 Engineering Physics Electives	PHYS 4XXX	6
		35

Track 1 Electromagnetic Fields and Waves

Electric Energy Conversion	ECE 3110	3
Communication Systems	ECE 4160	3
Electromagnetic Waves	ECE 4140	3
2 Engineering Electives	Selected in consultation with advisor	6
		15

Track 2 Analog Electronics

Linear Systems	ECE 3150	3
Electronic Circuit Design/Lab	ECE 3131/3132	4
Automatic Control Systems	ECE 4120	3
2 Engineering Electives	Selected in consultation with advisor	6
		16

Track 3 Communication

Digital Design/Lab	ECE 2205/2206	4
Linear Systems	ECE 3150	3
Communication Systems	ECE 4160	3
2 Engineering Electives	Selected in consultation with advisor	6
		16

GENERAL EDUCATION (22 Cr.)

Written Communication	ENGL1900 or 1920	3
Small Group Presentation	CMM 2200	1
Theological Foundations	THEO 1000	3
Ethics	PHIL 2050	3
Ethics & Engineering	PHIL 3400	3
Humanities Elective		3
Social/Behavioral Sciences Elective		3
Cultural Diversity Elective		3

OPEN ELECTIVES (6 Cr.)

Two Courses		6
		28

Freshman Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
Professional Orientation	1	PHYS 1610/1620 Engineering Physics I/Lab	4
CHEM 1110/1115 General Chemistry I/Lab	4	Open Elective	3
ENGL 1900 or 1920 Adv. Strategies of Rhetoric & Research or Adv. Writing for Professionals	3	MATH 1520 Calculus II	4
MATH 1510 Calculus I	4	CSCI 1060 Intro. to CS: Scientific Programming	3
Humanities Elective	3	THEO 1000 Theological Foundations	3
Total Credit Hours	**15**	**Total Credit Hours**	**17**

Sophomore Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
PHYS 1630 Engineering Physics II	3	PHYS 2610 Modern Physics	3
PHYS 1640 Engineering Physics II Laboratory	1	PHYS 2620 Modern Physics Laboratory	1
MATH 2530 Calculus III	4	PHYS 3110 Classical Mechanics	3
CMM 2200 Small Group Presentation	1	MATH 3550 Differential Equations I	3
ECE 2101 Engineering Circuits I	3	ECE 3140 Electromagnetic Fields	3
Social Science Elective	3	ECE 2102 Engineering Circuits II	3
		ECE 2103 Electrical Science Laboratory	1
Total Credit Hours	**15**	**Total Credit Hours**	**17**

Junior Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
PHIL 2050 Ethics	3	MATH 3240 Numerical Analysis	3
ECE Track Course With or Without Lab	3-4	PHYS 3410 Thermodynamics & Statistical Mech.	3
PHYS 4610 Quantum Mechanics	3	ECE Track Course With or Without Lab	3-4
MATH 3270 Advanced Mathematics for Engineers	3	MATH 4880 Probability & Statistics for Engineers	3
EENG 3130 Semiconductor Devices	3	Open Elective	3
Total Credit Hours	**15-16**	**Total Credit Hours**	**15-16**

Senior Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
ECE Elective	3	ENG 4810 ECE Design II	3
Engineering Physics Elective	3	PHYS 3310 Optics	3
EENG 4800 ECE Design I	3	PHYS 3320 Optics Laboratory	1
ECE Track Course	3	Engineering Physics Elective	3
PHIL 3400 Ethics & Engineering	3	ECE Elective	3
		Cultural Diversity Elective	3
Total Credit Hours	**16**	**Total Credit Hours**	**16**

Total Credit Hours: 126-128