CURRICULUM FOR ENGINEERING PHYSICS INTERDISCIPLINARY OPTION
(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 (55 Cr.) (ABET Minimum = 32 Cr.)

Principles of Biology I/Lab	BIOL 1240/1245	4
Principles of Biology II/Lab	BIOL 1260/1265	4
General Chemistry I/Lab	CHEM 1110/1115	4
General Chemistry II/Lab	CHEM 1120/1125	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
Numerical Analysis	MATH 3240	3
Foundations of Statistics	MATH 3850	3
Engineering Physics I/Lab	PHYS 1610/1620	4
Engineering Physics II/Lab	PHYS 1630/1640	4
Modern Physics/Lab	PHYS 2610/2620	4
Quantum Mechanics	PHYS 4610	3

ENGINEERING PHYSICS & ENGINEERING TOPICS (50 Cr.) (ABET Minimum = 48 Cr.)

Engineering Breadth (23 credit hours)

Engineering Mechanics – One of the following options (6 credit hours)

Mechanics	BME 3200	3
Biomechanics	BME 4200	3
or		
Statics	ESCI 2100	3
Dynamics	ESCI 2150	3

Computation – One of the following options (3 credit hours)

Biomedical Engineering Computing	BME 2000	3
Intro. to CS: Scientific Programming	CSCI 1060	3

Thermodynamics – One of the following options (3 credit hours)

Thermodynamics	ESCI 2300	3
Thermodynamics & Statistical Mechanics	PHYS 3410	3

Electricity & Magnetism – 7 credit hours

Electricity & Magnetism I	PHYS 4210	3
And one of the following options		
Intro. to ECE/Lab	ECE 2001/2002	4
Analog & Digital Electronics/Lab	PHYS 3510	4

Optics – 4 credit hours

Optics/Lab	PHYS3310/3320	4

Two of the following three Engineering Breadth Areas (6 credit hours)

Materials Science – One of the following options

Materials Science	BME 3400	3
Mechanics of Solids	ESCI 3100	3

Transport/Fluids – One of the following options

Transport Fundamentals	BME 3300	3
Fluid Dynamics	ESCI 3200	3

Signals/Systems – One of the following options

Signals	BME 3100	3
Linear Systems	ECE 3150	3

Engineering Depth (One focus area – 9 credit hours)

Three Upper Division Engineering Courses		9

Two Engineering Physics Electives – Two of the following options (6 credit hours)

Advanced Classical Mechanics	PHYS 3120	3
Electricity & Magnetism II	PHYS 4220	3
Application of Quantum Mechanics	PHYS 4620	3
Special Topics (Selected with mentor)	PHYS 4930	3

Senior Design Project (6 credit hours)

Two course sequence		6

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		

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	MATH 1520 Calculus II	4
ENGL 1900 or 1920 Adv. Strategies of Rhetoric & Research or Adv. Writing for Professionals	3	CHEM 1120/1125 General Chemistry II/Lab	4
MATH 1510 Calculus I	4	BIOL 1260/1265 Principles of Biology II/Lab	4
BIOL 1240/1245 Principles of Biology I/Lab	4		
Total Credit Hours	**16**	**Total Credit Hours**	**16**

Sophomore Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
PHYS 1630 Engineering Physics II/Lab	4	PHYS 2610 Modern Physics/Lab	4
Social/Behavioral Science Elective	3	MATH 3550 Differential Equations I	3
MATH 2530 Calculus III	4	Engineering Breadth Course	3
CMM 2200 Small Group Presentation	1	Engineering Breadth Course	3
Engineering Breadth Course	3	Humanities Elective	3
Total Credit Hours	**15**	**Total Credit Hours**	**16**

Junior Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
PHIL 2050 Ethics	3	PHYS 4210 Electricity & Magnetism I	3
MATH 3270 Adv. Mathematics for Engineers	3	PHYS 3310/3320 Optics/Lab	4
THEO 1000 Theological Foundations	3	Engineering Breadth Course	3
Engineering Breadth Course	4	MATH 3850 Foundations of Statistics	3
Engineering Breadth Course	3	MATH 3240 Numerical Analysis	3
Total Credit Hours	**16**	**Total Credit Hours**	**16**

Senior Year:

Semester 1:	**CR**	***Semester 2:***	**CR**
Engineering Breadth Course	3	Senior Project II	3
Engineering Depth Elective	3	Cultural Diversity Elective	3
Engineering Physics Elective	3	Engineering Depth Elective	3
Senior Project I	3	Engineering Depth Elective	3
PHYS 4610 Quantum Mechanics	3	Engineering Physics Elective	3
PHIL 3400 Ethics & Engineering	3		
Total Credit Hours	**18**	**Total Credit Hours**	**15**

Total Credit Hours: 128