

Engineering Physics

Summary of Requirements

Nonengineering and General Education Requirements	72
Required in the College of Engineering	34
Advanced Electromagnetics Requirement	6-8
Mathematics Elective	3
Technical Electives	9
Electives outside Major Rubric	2-4
Total Hours	128

Nonengineering and General Education Requirements

Code	Title	Hours
Required Courses		
<u>ENGL 160</u>	Academic Writing I: Writing in Academic and Public Contexts	3
<u>ENGL 161</u>	Academic Writing II: Writing for Inquiry and Research	3
Exploring World Cultures course ^a		3
Understanding the Creative Arts course ^a		3
Understanding the Past course ^a		3
Understanding the Individual and Society course ^a		3
Understanding U.S. Society course ^a		3
<u>MATH 180</u>	Calculus I ^b	4
<u>MATH 181</u>	Calculus II ^b	4
<u>MATH 210</u>	Calculus III ^b	3
<u>MATH 220</u>	Introduction to Differential Equations	3
<u>PHYS 141</u>	General Physics I (Mechanics) ^b	4
<u>PHYS 142</u>	General Physics II (Electricity and Magnetism) ^b	4
<u>PHYS 215</u>	Computational and Mathematical Methods for the Physical Sciences	4
<u>PHYS 240</u>	Fundamentals of Modern Quantum Theory	3

Code	Title	Hours
<u>PHYS 245</u>	Introduction to Vibrations, Waves, and Thermal Physics	4
<u>PHYS 411</u>	Quantum Mechanics I	4
<u>PHYS 441</u>	Theoretical Mechanics	4
<u>PHYS 481</u>	Modern Experimental Physics I	4
<u>PHYS 499</u>	Survey of Physics Problems	1
<u>CHEM 122</u>	General Chemistry I Lecture ^c	4
<u>CHEM 123</u>	General Chemistry Laboratory I ^{b,c}	1
Total Hours		72

Course List

- ^a *Students should consult the General Education section of the catalog for a list of approved courses in this category.*
- ^b *This course is approved for the Analyzing the Natural World General Education category.*
- ^c *General Education credit is given for successful completion of both CHEM 122 and CHEM 123.*

Required in the College of Engineering

Code	Title	Hours
Required Courses		
<u>ENGR 100</u>	Engineering Orientation ^a	1
<u>CME 260</u>	Properties of Materials	3
<u>CHE 201</u> or <u>ME 205</u>	Introduction To Thermodynamics Introduction to Thermodynamics	3
<u>CS 109</u>	C/C ++ Programming for Engineers with MatLab	3
<u>ECE 115</u>	Introduction to Electrical and Computer Engineering	4
<u>ECE 225</u>	Circuit Analysis ^b	4
<u>ECE 310</u>	Discrete and Continuous Signals and Systems	3
<u>ECE 346</u>	Solid State Device Theory	4
<u>ECE 440</u>	Nanoelectronics	3
<u>BIOE/PHYS 450</u>	Molecular Biophysics of the Cell	4

Code	Title	Hours
<u>ME 212</u>	Fundamentals of Fluid Mechanics	3
Total Hours		34

Course List

^a *ENGR 100 is a one-semester-hour course, but the hour does not count toward the total hours required for graduation.*

Advanced Electromagnetics Requirement

Code	Title	Hours
Required Courses		
Select one of the following two-course sequences:		6-8
<u>ECE 322</u> & <u>ECE 401</u>	Communication Electromagnetics and Quasi-Static Electric and Magnetic Fields	
<u>PHYS 401</u> & <u>PHYS 402</u>	Electromagnetism I and Electromagnetism II	
Total Hours		6-8

Course List

Mathematics Elective

Code	Title	Hours
Courses		
Select one of the following:		3
<u>MATH 310</u>	Applied Linear Algebra	
<u>MATH 417</u>	Complex Analysis with Applications	
<u>MATH 480</u>	Applied Differential Equations	
<u>MATH 481</u>	Applied Partial Differential Equations	
Total Hours		3

Course List

Technical Electives

Code	Title	Hours
Courses		
Select 9 semester hours from a list of technical electives available from the advisor. These courses should be selected in consultation with the advisor and should be chosen from approved sequences in the following areas:		9

Code	Title	Hours
	Bioengineering	
	Civil and Materials Engineering	
	Chemical Engineering Design	
	Chemical Engineering, Multiphase Transport Phenomena	
	Chemical Engineering, Chemical Processes	
	Computer Science	
	Electrical and Computer Engineering, Circuits and VLSI	
	Electrical and Computer Engineering, Communications and Signal and Processing	
	Electrical and Computer Engineering, Solid State, MEMS, and Nanotechnology	
	Electromagnetics and Optics	
	Mechanical Engineering, Thermal/Fluid Science	
	Mechanical Engineering, Mechanical Systems	
	Modern Physics	
	Total Hours	9
	Course List	
	Electives Outside Major Rubric	
Code	Title	Hours
	Electives	
	Electives outside the PHYS and ECE Rubrics	2-4
	Total Hours	
	Course List	

UIC Engineering Physics Curriculum* - Suggested Schedule of Courses

