

PHYSICS COMPREHENSIVE MAJOR: APPLIED PHYSICS/ PRE-ENGINEERING EMPHASIS

The Applied Physics/Pre-Engineering Major requires a minimum of 56 credits:

Code Title Credits
Select one of the following pairs of courses: 8

PHYS 190 General Physics I (GT-SC2)
& PHYS 185 and Laboratory Physics I (GT-SC1)

AND

PHYS 191 General Physics II (GT-SC2)
& PHYS 186 and Laboratory Physics II (GT-SC1)

OR

PHYS 170 Principles of Physics I (GT-SC2)
& PHYS 185 and Laboratory Physics I (GT-SC1)

AND

PHYS 171 Principles of Physics II (GT-SC2)
& PHYS 186 and Laboratory Physics II (GT-SC1)

And the following:

PHYS 320 Modern Physics 3

PHYS 250 Statics 3

PHYS 251 Dynamics 3

At least twelve credits chosen from the following: 12

CHEM 451 Physical Chemistry I

ENGR 363 Mechanics of Solids

MATH 358 Introduction to Differential Equations and Linear Algebra

PHYS 330 Classical Mechanics

PHYS 335 Fluid Mechanics

PHYS 350 Electricity and Magnetism I

PHYS 351 Electricity and Magnetism II

PHYS 452 Quantum Mechanics

PHYS 462 Astrophysics

At least two credits of Capstone Experience courses: 2

PHYS 495 Physics Capstone (may be repeated)

Minimum supporting courses:

Either: 3-4

CHEM 121 General Chemistry for Engineers

Or both:

CHEM 111 General Chemistry I (GT-SC2)
& CHEM 112 and General Chemistry Laboratory I (GT-SC1)

CS 190 Computer Science I 3

or CS 191 Computer Science II

And the following:

ENGR 131 Introduction to Engineering Design 3

ENGR 161 COMPUTER-AIDED DESIGN 3

ENGR 265 Engineering as a Profession 1

MATH 151 Calculus I (GT-MA1) 4

MATH 251	Calculus II	4
MATH 252	Calculus III	4

Course	Title	Credits
Year One		
Fall		
MATH 151	Calculus I (GT-MA1)	4
PHYS 170 or PHYS 190	Principles of Physics I (GT-SC2) or General Physics I (GT-SC2)	3
PHYS 185	Laboratory Physics I (GT-SC1)	1
CS 190 or CS 191	Computer Science I or Computer Science II	3
CHEM 121	General Chemistry for Engineers	3
HWTR 100	First Year Seminar	1
Gen Ed	Area I	3
Credits		18

Spring		
ENGR 131	Introduction to Engineering Design	3
ENGR 161	COMPUTER-AIDED DESIGN	3
PHYS 171 or PHYS 191	Principles of Physics II (GT-SC2) or General Physics II (GT-SC2)	3
PHYS 186	Laboratory Physics II (GT-SC1)	1
MATH 251	Calculus II	4
Gen Ed	Area III	3
Credits		17

Year Two		
Fall		
MATH 252	Calculus III	4
PHYS 250	Statics	3
PHYS 320	Modern Physics	3
ENGR 265	Engineering as a Profession	1
Elective	PHYS Elective (upper division)	3
Credits		14

Spring		
MATH 358	Introduction to Differential Equations and Linear Algebra	4
PHYS 251	Dynamics	3
Elective	PHYS Elective (upper division)	3
Elective	PHYS Elective (upper division)	3
ENG 102	Writing and Rhetoric I (GT-C01)	3
Credits		16

Year Three		
Fall		
ENG 103	Writing and Rhetoric II (GT-C02)	3
Gen Ed	Area I	3
Gen Ed	Area III	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
Credits		15

Spring		
Gen Ed	Area I	3
Gen Ed	Area III	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
Credits		15

Year Four		
Fall		
PHYS 495	Physics Capstone	1
Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor (upper division)	3

Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor	2
Credits		15
Spring		
PHYS 495	Physics Capstone	1
Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor (upper division)	3
Elective	Elective/Minor (upper division)	3
Credits		13
Total Credits		123