

# APPLIED PHYSICS AND PRE-ENGINEERING, B.S.

## Applied Physics and Pre-Engineering Requisite Courses:

Code	Title	Credits
<b>Physics Requisite Courses</b>		
MTH 245	Calculus I	4
MTH 246	Calculus II <sup>1</sup>	4
MTH 347	Calculus III <sup>2</sup>	3

## Applied Physics and Pre-Engineering Requirements (36 Credits):

Code	Title	Credits
<b>Course Requirements</b>		
PHY 213	General Physics for the Physical Sciences I <sup>3</sup>	3
PHY 214	General Physics for the Physical Sciences II <sup>4</sup>	3
PHY 223	Project Physics Laboratory I <sup>5</sup>	1
PHY 224	Project Physics Laboratory II <sup>6</sup>	1
PHY 250	Three Dimensional Design	2
PHY 301	Modern Physics	3
PHY 303	Electronics Laboratory	1
PHY 397	Research Methods	2
PHY 471	Classical Mechanics	3
PHY 491	Physics Seminar	1
PHY 497	Directed Independent Research	1
PHY 499	Research Capstone	1
MTH 350	Applied Linear Algebra and Differential Equations	3
Select one of the following courses:		3
CSC 221	Introduction to Programming	8
PHY 553	Computational Physics	
Select eight credits from the following courses:		8
CSC 222	Object-Oriented Programming	3
CSC 321	Data Structures	
CSC 414	Computer Organization	3
CSC 421	Algorithm Design and Analysis	
CSC 533	Programming Languages	3
CSC 548	Software Engineering	
CSC 590	Special Topics	3
MTH 360	Elementary Probability and Statistics	
MTH 362	Statistical Modeling	3
MTH 429	Advanced Linear Algebra	
MTH 443	Numerical Analysis	3
MTH 445	Advanced Differential Equations	
MTH 446	Partial Differential Equations	3
MTH 451	Differential Geometry	
MTH 455	Chaotic Dynamical Systems	3
MTH 471	Mathematical Analysis	
MTH 563	Mathematical Statistics III	3
MTH 573	Probabilistic Models	
MTH 575	Introductory Stochastic Processes	3
PHY 481	Electricity and Magnetism	

PHY 531	Quantum Mechanics	
PHY 541	Thermodynamics And Statistical Mechanics	
PHY 551	Mathematical Physics	
PHY 561	Nuclear Physics	
PHY 571	Condensed Matter Physics	
PHY 587	Laser Physics	
PHY 591	Seminar in Engineering	
<b>Total Credits</b>		<b>36</b>

<sup>1</sup> MTH 249 Modeling the Physical World I may be substituted for MTH 246.

<sup>2</sup> MTH 349 Modeling the Physical World II may be substituted for MTH 347.

<sup>3</sup> PHY 201 General Physics for the Life Sciences or PHY 221 Advanced General Physics I:Modeling the Physical World may be substituted for PHY 213.

<sup>4</sup> PHY 202 General Physics for the Life Sciences II or PHY 222 Advanced General Physics II:Modeling the Physical World may be substituted for PHY 214.

<sup>5</sup> PHY 205 General Physics Laboratory I may be substituted for the PHY 223 Project Physics Laboratory I requirement.

<sup>6</sup> PHY 206 General Physics Laboratory II may be substituted for the PHY 224 Project Physics Laboratory II requirement.