

ENGINEERING PHYSICS, BACHELOR OF SCIENCE

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Curriculum

The matrix below is a sample plan for all coursework required for this program.

Course	Title	Hours	Completed
Freshman			
Fall			
CHEM 2124 & CHEM 2120	General Chemistry I and General Chemistry I Lab	4	_____
COMS 1011 & COMS 1013	Programming Foundations I Lab and Programming Foundations I	4	_____
ENGL 1013	Composition I ¹	3	_____
MATH 2914	Calculus I	4	_____
PHSC 1001	Orientation to Physical Science	1	_____
	Hours	16	
Spring			
ENGL 1023	Composition II ¹	3	_____
MATH 2924	Calculus II	4	_____
MCEG 2023	Engineering Materials	3	_____
PHSC 1011	Orientation to Physical Science II	1	_____
PHYS 2114 & PHYS 2000	Calculus-Based Physics I and Physics Laboratory I	4	_____
	Hours	15	
Sophomore			
Fall			
COMS 2203	Programming Foundations II	3	_____
MATH 2934	Calculus III	4	_____
MCEG 2013	Statics	3	_____
PHYS 2124 & PHYS 2010	Calculus-Based Physics II and Physics Laboratory II	4	_____
SS 1XXX	Social Science Courses ¹	3	_____
	Hours	17	
Spring			
ELEG 2103	Electric Circuits I	3	_____
FAH 1XXX	Fine Arts and Humanities Courses ¹	3	_____
MATH 3243	Differential Equations I	3	_____
MCEG 2033	Dynamics	3	_____
PHYS 3213	Modern Physics	3	_____
	Hours	15	
Junior			
Fall			
COMS 2323	Programming in Python	3	_____
ELEG 2113	Electric Circuits II	3	_____
ELEG 2111	Electric Circuits Laboratory	1	_____
FAH 1XXX	Fine Arts and Humanities Courses ¹	3	_____
PHYS 3023 or PHYS 4013	Mechanics or Quantum Mechanics	3	_____

PHYS 3133 or PHYS 4023	Theory of Electricity and Magnetism or Computational Physics	3	_____
Hours		16	
Spring			
MCEG 3013	Mechanics of Materials	3	_____
MCEG 3313	Thermodynamics I	3	_____
PHYS 3003 or PHYS 4113	Optics or Advanced Physics Laboratory	3	_____
PHYS 4213 or PHYS 4003	Advanced Topics in Physics and Astronomy (or an upper division Mathematics course) or Thermodynamics and Statistical Mechanics	3	_____
USHG 1XXX	U.S. History and Government ¹	3	_____
Hours		15	
Senior			
Fall			
MCEG 4202	Engineering Design	2	_____
MCEG 4403	Mechanics of Fluids and Hydraulics	3	_____
PHYS 3023 or PHYS 4013	Mechanics or Quantum Mechanics	3	_____
PHYS 3133 or PHYS 4023	Theory of Electricity and Magnetism or Computational Physics	3	_____
COMS/ELEG/MCEG Elective (3000-4000 level)		3	
Hours		14	
Spring			
COMS/ELEG/MCEG Elective (3000-4000 level)		2	
MCEG 4443	Heat Transfer	3	_____
PHYS 3003 or PHYS 4113	Optics or Advanced Physics Laboratory	3	_____
PHYS 4061	Engineering Physics Design	1	_____
PHYS 4213 or PHYS 4003	Advanced Topics in Physics and Astronomy (or an upper division Mathematics course) or Thermodynamics and Statistical Mechanics	3	_____
Hours		12	
Total Hours		120	

¹ See appropriate alternatives or substitutions in "General Education Requirements (<https://catalog.atu.edu/undergraduate/general-education-requirements/>)". A specific general education core course does not have to be taken in the semester listed, any other part of the general education core at any time is acceptable as well.

Excluding MATH 3003 Foundations of Advanced Mathematics, MATH 3033 Methods of Teaching Elementary Mathematics, and MATH 4113 History of Mathematics.

PHYS 3023 Mechanics and PHYS 4003 Thermodynamics and Statistical Mechanics will satisfy the prerequisites for MCEG 3013 Mechanics of Materials and MCEG 4403 Mechanics of Fluids and Hydraulics for engineering physics majors.

Must complete both the PHYS class and one MATH upper division elective (PHYS course offered in alternating years).