ENGINEERING PHYSICS (AEROSPACE) - BACHELOR OF SCIENCE IN ENGINEERING PHYSICS

A strong grasp of underlying physical principles behind the development of new technologies is necessary to keep up with new developments in a high-tech world. The Bachelor of Science (B.S.) in Engineering Physics degree program is designed to provide quality education to students for immediate employment with technical jobs in private industries (especially high-tech industries), research laboratories and public sectors. The program trains students with a combination of engineering knowledge, physics principles, mathematical background, problem-solving strategies and effective communication skills. The B.S. in Engineering Physics also provides an excellent preparation for graduate studies in either physics or an engineering discipline.

The B.S. degree in Engineering Physics confers an engineering credential. Students in the program complete an engineering core curriculum, as well as a rigorous course of study in physics and mathematics. A strong laboratory component prepares students in experimental techniques and technology using state-of-the-art equipment. The B.S. degree in Engineering Physics is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc.

The requirements for the Aerospace concentration is listed below. Students must earn a C- or better in all required courses.

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 124 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Prefix	Title	Credits
General Education		
Area I: Communications		
English Composition - Level 1		
ENGL 1110G	Composition I	4
English Composition - Level 2 [1]		*3*
Oral Communication [1]		*3*
Area II: Mathematics		
MATH 1511G	Calculus and Analytic Geometry I [2]	4
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		*11*
Select one seuqence from the following for four credits:		
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab	
PHYS 2110 & 2110L	Mechanics and Experimental Mechanics [3]	
Select one seuqence from the following for four credits:		
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab	
PHYS 2140 & 2140L	Electricity and Magnetism and Electricity & Magnetism Laboratory [3]	
Area IV: Social and Behavioral Sciences (3 credits) [1]		
Area V: Humanities [1]		*3*
Area VI: Creative and Fine Arts [1]		*3*
General Education Elective		
MATH 1521G	Calculus and Analytic Geometry II	4
or MATH 1521H	Calculus and Analytic Geometry II Honors	
Viewing A Wider World		
Viewing a Wider World Electives [4]		6
Departmental/College Requirements		
Program Specific Requirements		
Mathematics		
MATH 2530G	Calculus III	3
MATH 392	Introduction to Ordinary Differential Equations	3
Natural Science		
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
Physics		
PHYS 2120 & 2120L	Heat, Light, and Sound and Heat, Light, and Sound Laboratory	4
PHYS 395	Intermediate Mathematical Methods of Physics	3
PHYS 454	Intermediate Modern Physics I	3
PHYS 455	Intermediate Modern Physics II	3
Physics with Engineering Component		
PHYS 315	Modern Physics	3
PHYS 325	Intermediate Experimental Physics	3
PHYS 461	Intermediate Electricity and Magnetism I	3
PHYS 462	Intermediate Electricity and Magnetism II	3
Engineering		
A E 339	Aerodynamics I	3
A E 362	Orbital Mechanics	3
A E 363	Aerospace Structures	3
A E 364	Flight Dynamics and Controls	3
A E 419	Propulsion	3
A E 424	Aerospace Systems Engineering	3
A E 439	Aerodynamics II	3
A E 447	Aerofluids Laboratory	3
C E 301	Mechanics of Materials	3
M E 240	Thermodynamics	3
M E 261	Mechanical Engineering Problem Solving	3
ENGR 100G	Introduction to Engineering	3
ENGR 233	Engineering Mechanics I	3
ENGR 234	Engineering Mechanics II	3
ENGR 401	Engineering Capstone I	3
ENGR 402	Engineering Capstone II	3
Second Language: (not required)		
Electives, to bring the total credits to 124		**0**
Total Credits		124

1 See the General Education section of the catalog for a full list of courses.

2 MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter MATH 1511G Calculus and Analytic Geometry I first.

3 PHYS 2110 Mechanics/PHYS 2110L Experimental Mechanics and PHYS 2140 Electricity and Magnetism/PHYS 2140L Electricity & Magnetism Laboratory will not automatically count towards the Area III: Laboratory Science requirement, an exception will be made if students elect to take these courses.

[4] See the Viewing a Wider World section of the catalog for a full list of courses. See Alternatives for meeting VWW requirements (nine-credit rule).

A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1511G Calculus and Analytic Geometry I and ENGL 1110G Composition I. The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

Course	Title	Credits
First Year		
Semester 1		
ENGL 1110G	Composition I [1]	4
MATH 1511G	Calculus and Analytic Geometry I [1]	4
PHYS 2110 & 2110L	Mechanics and Experimental Mechanics [1,2]	4
ENGR 100G	Introduction to Engineering [1]	3
	Credits	15
Semester 2		
MATH 1521G or MATH 1521H	Calculus and Analytic Geometry II [1] or Calculus and Analytic Geometry II Honors	4
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors [1]	4
PHYS 2140 & 2140L	Electricity and Magnetism and Electricity & Magnetism Laboratory [1,2]	4
M E 240	Thermodynamics [1]	3
	Credits	15
Second Year		
Semester 1		
MATH 2530G	Calculus III [1]	3
PHYS 2120 & 2120L	Heat, Light, and Sound and Heat, Light, and Sound Laboratory [1]	4
ENGR 233	Engineering Mechanics I	3
M E 261	Mechanical Engineering Problem Solving [1]	3
ENGL 2210G	Professional & Technical Communication [1]	3
	Credits	16
Semester 2		
MATH 392	Introduction to Ordinary Differential Equations [1]	3
PHYS 315	Modern Physics [1]	3
PHYS 325	Intermediate Experimental Physics	3
ENGR 234	Engineering Mechanics II	3
C E 301	Mechanics of Materials [1]	3
COMM 1115G	Introduction to Communication	3
	Credits	18
Third Year		
Semester 1		
PHYS 395	Intermediate Mathematical Methods of Physics [1]	3
PHYS 461	Intermediate Electricity and Magnetism I [1]	3
A E 339	Aerodynamics I [1]	3
A E 362	Orbital Mechanics [1]	3
A E 364	Flight Dynamics and Controls [1]	3
	Credits	15
Semester 2		
PHYS 462	Intermediate Electricity and Magnetism II [1]	3
A E 363	Aerospace Structures [1]	3
A E 439	Aerodynamics II [1]	3
Area IV: Social and Behavioral Science Course [3]		3
Area V: Humanities Course [3]		3
	Credits	15
Fourth Year		
Semester 1		
PHYS 454	Intermediate Modern Physics I [1]	3
A E 424	Aerospace Systems Engineering [1]	3
A E 419	Propulsion [1]	3
A E 447	Aerofluids Laboratory [1]	3
ENGR 401	Engineering Capstone I	3
	Credits	15
Semester 2		
PHYS 455	Intermediate Modern Physics II [1]	3
ENGR 402	Engineering Capstone II [1]	3
VWW: Viewing a Wider World Course [4]		3
VWW: Viewing a Wider World Course [4]		3
Area VI: Creative and Fine Arts Course [3]		3
	Credits	15
	Total Credits	124

[1] These courses may have prerequisites and/or co-requisites, and it is the students responsibility for checking and fulfilling all those requirements.

[2] PHYS 2110 Mechanics/PHYS 2110L Experimental Mechanics and PHYS 2140 Electricity and Magnetism/PHYS 2140L Electricity & Magnetism Laboratory will not automatically count towards the Area III: Laboratory Science requirement, an exception will be made if students elect to take these courses.

[3] See the General Education section of the catalog for a full list of courses.

[4] See the Viewing a Wider World section of the catalog for a full list of courses.