

# ENGINEERING PHYSICS (AEROSPACE ENGINEERING) - 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 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 121 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
<b>General Education</b>		
<i>Area I: Communications</i>		
<i>English Composition - Level 1</i>		
ENGL 1110G	Composition I	4
<i>English Composition - Level 2<sup>1</sup></i>		
<i>Oral Communication<sup>1</sup></i>		
<i>Area II: Mathematics</i>		
MATH 1511G	Calculus and Analytic Geometry I <sup>2</sup>	4
<i>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</i>		
Select one sequence 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 <sup>3</sup>	
Select one sequence 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 <sup>3</sup>	
<i>Area IV: Social and Behavioral Sciences (3 credits)<sup>1</sup></i>		
<i>Area V: Humanities<sup>1</sup></i>		
<i>Area VI: Creative and Fine Arts<sup>1</sup></i>		
<i>General Education Elective</i>		
MATH 1521G or MATH 1521H	Calculus and Analytic Geometry II Calculus and Analytic Geometry II Honors	4
<b>Viewing A Wider World</b>		
Viewing a Wider World Electives <sup>4</sup>		

## Departmental/College Requirements

### Program Specific Requirements

#### Mathematics

MATH 2530G	Calculus III	3
MATH 3160	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	Numerical Methods	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 121** **0**

**Total Credits** **121**

<sup>1</sup> See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses. See Alternatives for meeting VWW requirements (nine-credit rule).