ENGINEERING PHYSICS
MAJOR (B.S.)

https://ceps.unh.edu/physics/program/bs/engineering-physics-major

Description

The goal of the UNH BSEP program is to produce broadly-trained engineers who can provide solutions to today’s challenging problems in support of a technologically evolving society. The core of the program is based on interdisciplinary training, complemented with a deeper understanding of the physical principles needed to support careers in engineering, engineering research or, perhaps, further training in systems engineering. The program balances depth and breadth in skill development; flexibility and functionality are what drive the program in the sense that 1) the particular focus is based on the student’s interests, and 2) the breadth of the course selection is guided by the post-graduation goals of the student (e.g., employment versus graduate school).

Requirements

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<th>Code</th>
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**Core Requirements for all tracks:**

- **CHEM 403** General Chemistry I 4
- **CHEM 405** Chemical Principles for Engineers 4
- **CS 410P** Introduction to Scientific Programming/Python 4
- **IAM 550** Introduction to Engineering Computing 4
- **MATH 425** Calculus I 4
- **MATH 426** Calculus II 4
- Choose one: 8-12
  - **MATH 527** Differential Equations with Linear Algebra and Multidimensional Calculus
  - **MATH 528** Linearity I
  - **MATH 529** Linearity II
- **PHYS 400** Freshman Seminar 4
- **PHYS 407** General Physics I 4
- **PHYS 408** General Physics II 4
- **PHYS 505** General Physics III 4
- **PHYS 506** General Physics III Laboratory 1
- **PHYS 508** Thermodynamics and Statistical Mechanics 4
- **PHYS 615** Classical Mechanics and Mathematical Physics I 4
- **PHYS 616** Classical Mechanics and Mathematical Physics II 4
- **PHYS 703** Electricity and Magnetism I 4
- **PHYS 797** Senior Design Project 2

**Additional courses for Aerospace Track**

- **ME 441** Introduction to Engineering Design and Solid Modeling 4
- **ME 608** Fluid Dynamics 4
- **ME 670** Systems Modeling, Simulation, and Control 4

**Additional Courses for Material Science track**

- **ME 561** Introduction to Materials Science 4
- **ME 646** Experimental Measurement and Data Analysis 4
- **ME 761** Diffraction and Imaging Methods in Materials Science 4
- **ECE 541** Electric Circuits 4
- **ECE 548** Electronic Design I 4
- **PHYS 701** Quantum Mechanics I 4
- **PHYS 718** Condensed Matter Physics 4

Electives in major: choose three courses from the following: 12

- **ME 730** Mechanical Behavior of Materials 4
- **ME 735** Mechanics of Composite Materials 4
- **ME 760** Physical Metallurgy I 4
- **ME 786** Introduction to Finite Element Analysis 4
- **ME 795** Special Topics (Thin Film Science & Technology) 4
- **ME 795** Special Topics (Fracture and Fatigue of Engineering Material) 4
- **ME 795** Special Topics (Physical Metallurgy of Automotive and Aerospace Materials) 4
- **ME 795** Special Topics (Thermodynamics & Kinetics of Materials I) 4

**Additional Courses for the Engineering Research track**

- **ECE 541** Electric Circuits 4
- **ECE 543** Introduction to Digital Systems 4
- **ECE 548** Electronic Design I 4
- **ECE 633** Signals and Systems I 3
- **ECE 647** Random Processes and Signals in Engineering 3
- **ECE 651** Electronic Design II 4
- **ME 608** Fluid Dynamics 3
- **PHYS 704** Electricity and Magnetism II 4
- **PHYS 708** Optics 4

Electives in major: choose three from the following: 12

- **ECE 634** Signals and Systems II 4
- **MS 762** Electronic Materials Science 4
- **ME 561** Introduction to Materials Science 4
- **ME 670** Systems Modeling, Simulation, and Control 4
- **ME 706** Renewable Energy: Physical and Engineering Principles 4
- **ME 712** Waves in Fluids 4
- **ME 743** Satellite Systems, Dynamics, and Control 4
- **ME 770** Design with Microprocessors 4

A student must have a minimum grade of C in each 400- or 500-level courses that are part of the core requirements and an overall grade-point average of 2.33 in these courses in order to continue in the program.
# Degree Plan

## Aerospace Track (p. 2)

### Materials Science Track (p. )

### Engineering Research Track (p. )

## Aerospace Track

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**Total Credits** 123

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**Total Credits** 129

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