# PHYSICS COMPREHENSIVE - ENGINEERING EMPHASIS, BACHELOR OF SCIENCE

Offered by Department of Physics and Astronomy (http://catalog.unk.edu/undergraduate/departments-programs/physics-astronomy)

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## General Studies

### Foundational Core (Written, Math, Oral, Democracy)

- Foundational Core courses (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses)
  - MATH 115: Calculus I with Analytic Geometry

### Portal

- Select one course numbered 188 (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/portal-course)

### Distribution

- Aesthetics (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/aesthetics)
  - 3 credit hours
- Humanities (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/humanities)
  - 6 credit hours
- Social Sciences (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/social-sciences)
  - 6 credit hours
- Natural Sciences (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/natural-sciences)
  - 8 credit hours
  - Including:
    - PHYS 275 & 275L: General Physics I (Calculus) and General Physics I (Calculus) Laboratory

### Analytical and Quantitative Thought (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/analytical-quantitative-thought)

- CSIT 112: Programming in C

### Wellness (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/wellness)

- 0 credit hours

### Needed to reach 27 credit hour minimum in Distribution

- 1 credit hour

## Capstone

- Select one course numbered 388 (http://catalog.unk.edu/undergraduate/general-studies/general-studies-courses/capstone-course)

## BS Science-related course requirements

- CHEM 160 & 160L: General Chemistry and General Chemistry Laboratory
- CHEM 161 & 161L: General Chemistry and General Chemistry Laboratory

## Major Option

- Complete all required courses

## Unrestricted electives

### Needed to reach 120 credit hour minimum

- 3 credit hours

### Total Credit Hours

- 120 credit hours

## Major Option

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### Physics Comprehensive (Engineering Emphasis) Requirements

- PHYS 276 & 276L: General Physics II (Calculus) and General Physics II (Calculus) Laboratory
- PHYS 346: Modern Physics I
- PHYS 410: Mathematical Techniques in Physics I

### Physics Comprehensive (Engineering Emphasis) Electives

- Select 6 credit hours of the following:

  - PHYS 402: Analytic Mechanics
  - PHYS 407: Electricity & Magnetism
  - PHYS 419: Quantum Mechanics
  - PHYS 420: Advanced Physics Laboratory
  - PHYS 430: Optics
  - PHYS 440: Thermodynamics and Statistical Mechanics

### Physics Comprehensive (Engineering Emphasis) Math Requirements

- MATH 202: Calculus II with Analytic Geometry
- MATH 260: Calculus III
- MATH 305: Differential Equations

### Physics Comprehensive (Engineering Emphasis) Engineering Requirements

- ENGR 101: Introduction to Engineering
- Select 11 credit hours of the following:
  - ENGR 130: Computer Aided Drafting for Mechanical Engineering
  - ENGR 215: Engineering Circuits I
  - ENGR 216: Engineering Circuits II
  - ENGR 223: Engineering Statics
  - ENGR 325: Mechanics of Materials
  - ENGR 373: Engineering Dynamics

Students must take 17 credit hours of engineering classes at 300 level or above from an ABET (Accreditation Board of Engineering and Technology) accredited university.

### Total Credit Hours

- 62 credit hours

1. Students without sufficient preparation will also need to take the following courses, increasing the total credit hours needed:
   - MATH 102
   - MATH 103