Syllabus

PHY 119 - College Physics II

General Information

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Department Science and Technology

Course Prefix PHY

Course Number 119

Course Title College Physics II

Course Information

Catalog Description Second semester of a two-semester sequence suitable for transfer students seeking a laboratory science elective, life science students, and those in the engineering technologies. This course is at the mathematical level of intermediate algebra and trigonometry. Topics include oscillations and waves, electricity, magnetism, AC and DC circuits, optics, and limited topics in thermodynamics.

Credit Hours 4

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 1

Grading Scheme Letter

Prerequisites

PHY 118 with a C or better and MAT 145 with a C or better or placement into Math Level 3 or higher

Co-requisites

None

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category
Natural Sciences (and Scientific Reasoning)

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Apply basic physical principles to the study of oscillators, waves, electric charges, electrical circuits, magnetic systems, and thermodynamic systems.
2. Make and analyze measurements of physical phenomena, applying the proper use of units, dimensions, statistics, uncertainty, graphing, and calculation.
3. Apply arithmetic, algebraic, and geometric principles to the analysis of oscillators, waves, electric charges, electrical circuits, magnetic systems, and thermodynamic systems.
4. Students will connect physics to other sciences, the arts, and everyday life.

Outline of Topics Covered

- **Oscillations**
  - **Spring-Mass Systems**
  - **Pendulums**
  - **Driven Oscillators**
  - **Resonance**
  - **Damped Oscillators**
- **Waves**
  - **Transverse and Longitudinal Waves**
  - **Wave Superposition**
  - **Standing Waves on Strings**
- **Sound**
  - **Beats**

- Doppler Effect
- Standing Waves in Tubes

Wave and Ray Optics

Electromagnetic Waves

Optical Instruments

Electric Charges, Forces, and Fields

- Common Electric Fields

Gauss’s Law

Electric Potential

Capacitors

Current and Resistance

Fundamentals of DC circuits

Magnetic Fields

- Ampere’s Law

Electromagnetic Induction

Fundamentals of AC circuits

Heat, Work, Calorimetry

Ideal Gases

Laws of Thermodynamics