Syllabus

PHY 152 University Physics II

General Information

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Department
Science and Technology

Course Prefix
PHY

Course Number
152

Course Title
University Physics II

Course Information

Credit Hours
4

Lecture Contact Hours
3

Lab Contact Hours
2

Other Contact Hours
1

Catalog Description
Second semester of a two-semester sequence suitable for transfer students pursuing degrees in engineering, computer science, physics, or professional programs which require calculus-based physics. Topics include oscillations and waves, electricity, magnetism, AC and DC circuits, optics, and limited topics in thermodynamics.

Key Assessment
This course does not contain a Key Assessment for any programs

Prerequisites
MAT 272 with a C or better and PHY 151 with a C or better

Co-requisites
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

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Inquiry
Perseverance
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, geometric and Calculus principles to the analysis of oscillators, waves, electric charges, electrical circuits, magnetic systems, and thermodynamic systems.

4. Connect physics to other sciences, the arts, and everyday life.

Program Affiliation

This course is not required as a core course in a program

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
    Continuous Charge Distributions
Gauss’s Law
  Derivation of Symmetric Fields
Electric Potential
  Potential in a Variable Field
Capacitors
  Current and Resistance
Fundamentals of DC circuits
    Systems of Resistors
    Kirchhoff’s Laws
Magnetic Fields
Applying Ampere’s Law

Electromagnetic Induction

Fundamentals of AC circuits

Heat, Work, Calorimetry

Ideal Gases

Laws of Thermodynamics