



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

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.

Credit Hours 4

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 1

Grading Scheme Letter

Prerequisites

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

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, 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.

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