

Virginia Western Community College

PHY 202

General College Physics II

Prerequisites

PHY 201

Course Description

Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism, and selected topics in modern physics. Part II of II.

Semester Credits: 4

Lecture Hours: 3

Laboratory Hours: 3

Required Materials

A calculator for exams and laboratory works

Textbook:

College Physics with MasteringPhysics access. Knight, Jones, Field. 3rd edition. Pearson Publishing.
ISBN: 9780134201979

Course Outcomes

At the completion of this course, the student should be able to:

- Understand the wave phenomena. Solve the problems involving standing waves and interference.
- Understand the properties of light and geometric optics and physical optics. Solve problems involving refraction, reflection, and diffraction of light.
- Understand the electric and magnetic force and learn the concept of the electric and magnetic field. Solve problems involving the motion of charged objects in electric and magnetic fields.
- Understand the electromagnetic induction and its application.
- Analyze simple DC & AC circuits consisting of resistors, capacitors, inductors, and EMFs using series/parallel relations or Kirchhoff's Laws.

Topical Description

Chapter 15	Traveling Waves and Sound
Chapter 16	Wave Optics
Chapter 17	Geometric Instruments
Chapter 18	Ray Optics

Chapter 19	Optical Instruments
Chapter 20	Electric Fields and Forces
Chapter 21	Electric Potential
Chapter 22	Current and Resistances
Chapter 23	Circuits
Chapter 24	Magnetic Fields and Forces
Chapter 25	Electromagnetic Inductions
Chapter 26	AC Electricity
Chapter 27	Relativity
Chapter 28	Quantum Physics (if time permits)
Chapter 29	Atoms and Molecules (if time permits)
Chapter 30	Nuclear Physics (if time permits)

Laboratory Topics

Lab 1	Introduction. Safety. Fitting Curves
Lab 2	Standing Wave
Lab 3	Sound Wave
Lab 4	Snell's Law
Lab 5	Lens and Mirror
Lab 6	Mapping Equipotential Lines
Lab 7	Voltage Parallel and Serial Connection
Lab 8	DC Circuit and Kirchhoff's Rule
Lab 9	RC Circuit
Lab 10	Magnetic Forces on Wires
Lab 11	Magnetic Field and Faraday's Law
Lab 12	AC Circuit Demonstration

Notes to Instructors

None.