Revised: Fall 2016

PHY 202
College Physics II

COURSE OUTLINE

Prerequisites:

MTH 163 or MTH115. PHY201

Course Description:

Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism, and selected topics in modern physics.
Prerequisite: MTH 163 or MTH115. PHY201
Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. 4 credits

Semester Credits: 4 **Lecture Hours: 3** **Lab/Recitation Hours: 3**

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Course Outcomes

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

1. Understand the wave phenomena. Solve the problems involving standing waves and interference.

2. Understand the properties of light and geometric optics and physical optics. Solve problems involving refraction, reflection, and diffraction of light.

3. 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.

4. Understand the electromagnetic induction and its application.

5. Analyze simple DC & AC circuits consisting of resistors, capacitors, inductors, and EMFs using series/parallel relations or Kirchhoff's Laws.

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Required Materials:

A calculator for exams and laboratory works

Textbook:

College Physics, Knight, Jones and Field, 3rd edition, Pearson
ISBN 9780321879721 with Mastering Physics for homework

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College Physics II, PHY202

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)

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Lab Schedule

Lab 1	Introduction. Safety. Fitting curves.
Lab 2	Standing wave
Lab 3	Sound wave
Lab 4	Snell's Law
Lab 5	Len's 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

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