COLLEGEWIDE COURSE OUTLINE OF RECORD

PHYS 102, PHYSICS II

COURSE TITLE: Physics II
COURSE NUMBER: PHYS 102
PREREQUISITES: PHYS 101 Physics I
SCHOOL: Liberal Arts and Sciences
PROGRAM: Liberal Arts
CREDIT HOURS: 4
CONTACT HOURS: Lecture: 3 Lab: 2
DATE OF LAST REVISION: Fall, 2011
EFFECTIVE DATE OF THIS REVISION: Fall, 2015

CATALOG DESCRIPTION: Introduces the physics of light, periodic and wave motion, electricity and magnetism, and concepts of modern and current physics. Includes lab.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Compute key performance parameters in periodic and simple harmonic motion and longitudinal and transverse wave motion, as exemplified by periodic mechanical disturbances, sound, and light.
2. Compute quantities related to light.
3. Solve problems involving the reflection and refraction of light and their applications, including lens and mirror performance and the construction of lenses.
4. Compute effective impedance values for series arrangement and parallel arrangements of resistors, capacitors and inductors and compute time constants for the exponential rise/decay of voltage/current.
5. Solve basic problems in series and parallel alternating and direct current circuits using Ohm's and Kirchhoff's laws.
6. Solve basic problems in electromagnetic induction and transformers.
7. Solve basic problems in modern and current physics including (1) the structure of the atom, (2) radioactivity, the associated nuclear reactions, and the concept of half-life, and (3) fission and fusion reactions.
8. Use laboratory equipment to demonstrate scientific principles.
9. Recognize uncertainties in data.
10. Tabulate and graph data and compute results.
11. Work in teams.
12. Draw reasonable conclusions from quantitative data and communicate results to others.

COURSE CONTENT: Topical areas of study include --

Vibrations	Electric potential and electric energy
Sound	Electric charge and electric field
Capacitance	Electric currents and Ohm's law

DC circuits	Electromagnetic induction
AC circuits	Electromagnetic waves
Magnetism	Geometric optics
Wave optics	Nuclear physics
Atomic physics	Waves

Laboratory experiments will be selected from the topics above.

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