Outline of Instruction

Division: Science/Mathematics  Area: Science
Course Number: PHY 252  Course Name: Engineering Physics II
Prerequisite: PHY 251. MATH 251 and MATH 273 are highly recommended.
Corequisite: NONE
Hours Required: Class: 60  Lab: 45  Credits: 5 (five)

Course Description/Purpose
This course is a continuation of PHY 251 and is designed to satisfy the requirements of engineering and physics majors. Topics include temperature and heat, electricity and magnetism, electromagnetic waves, optics and quantum, atomic and nuclear physics. This course requires laboratory work.

Major Units
- Electrical Fields and Potential
- Capacitance and Dielectrics
- Simple Circuits
- Magnetism and Magnetic Fields
- Inductance
- Alternating Current
- Simple Harmonic Motion
- Standing Waves
- Electromagnetic Waves
- Light and Geometric Optics
- Optical Instruments
- Physical Optics
- Quantum Physics
- Atomic Physics
- Nuclear Physics

Laboratory Topics
- Electrostatics
- Electric Field
- Capacitance and Dielectrics
- Millikan’s Apparatus
- Drift Velocity and Ohm’s Law
- Simple Circuits
- Capacitance and R C Circuits
- e/m
- A C Circuits
- Inductors and Transformers
- Ray Tracing
- Optical Instruments
- Lasers
- Chart of Nuclides
- Radioactive Decay

Educational/Course Outcomes
Student learning will be assessed by a variety of methods, including, but not limited to, quizzes and tests, journals, essays, papers, projects, laboratory/clinical exercises and examinations, presentations, simulations, portfolios, homework assignments, and instructor observations.

Cognitive
Each student will be expected to Identify/Recognize . . .
- understand the basic concepts and principles of the mechanical and relativistic universe through discussion, problem solving, and laboratory work;
- strengthen the student’s understanding of the concepts and principles through a broad coverage of interesting applications to the real world of an engineer or scientist.

Performance
Each student will be expected to Demonstrate/Practice . . .
- use a computer and appropriate software for word processing, data collection, graphical displays, and data analysis.

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