PHYS 105 Principles of Physics lll

This course provides an overview of the fundamental principles of physics in the areas of static equilibrium and elasticity, fluid mechanics, kinetic theory of gases, zeroth, first and second laws of thermodynamics, simple harmonic motion, oscillations and waves, mechanical waves, vibrating bodies, and acoustic phenomena.

(Pre-requisites: PHYS 101 and either of MATH 152 or MATH 154)

Course Learning Outcomes:

By the end of the course, students will be able to:

1. Identify in detail the main theories and concepts behind static equilibrium and elasticity, fluid mechanics, kinetic theory of gases, first and second law of thermodynamics, mechanical waves, vibrating bodies, and acoustic phenomena.
2. Relate the main theories and concepts behind static equilibrium and elasticity, fluid mechanics, kinetic theory of gases, first and second law of thermodynamics, mechanical waves, vibrating bodies, and acoustic phenomena to real-life situations using some advanced skills.
3. Solve defined and some undefined real life problems using the theories and concepts of static equilibrium and elasticity, fluid mechanics, kinetic theory of gases, first and second law of thermodynamics, mechanical waves, vibrating bodies, and acoustic phenomena.
4. Analyse real life problems using the theories and concepts of static equilibrium and elasticity, fluid mechanics, kinetic theory of gases, first and second law of thermodynamics, mechanical waves, vibrating bodies, and acoustic phenomena.

Textbook & Course Materials:

- Principles of Physics, by Walker, Halliday and Resnick, 10th Edition (Wiley)

Course Content:

1. Static equilibrium and elasticity
2. Fluids mechanics
3. Temperature, Heat, and the Zeroth Law of Thermodynamics
4. The Kinetic Theory of Gases
5. Entropy and the Second Law of Thermodynamics
6. Oscillations and simple harmonic motion
7. Waves phenomenon
8. Electromagnetic waves