

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY PHY 130 – SURVEY OF APPLIED PHYSICS (3CR.)

Course Description

Surveys topics such as heat, electricity, and light with emphasis on practical applications.
Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.
3 credits

General Course Purpose

A general survey of the fundamental principles of physics as applied to new technologies. Mechanics, material science, waves motion, and electricity are covered as essential components of any technology.

Course Prerequisites/Corequisites

Basic arithmetic, high school algebra, and high school geometry

Course Objectives

Upon completing the course, the student will be able to:

- Identify and apply physics principles to relevant physics problems
- Apply critical thinking to their respective occupational field and day-to-day life
- Used and manipulate formulae that relate to physical phenomena
- Collect and record experimental data and obtain meaningful results
- Research physics topics related to their corresponding fields of interest.

Major Topics to be Included

- Motion: velocity, acceleration
- Forces: Newton's Laws, friction, centripetal force
- Linear Momentum: impulse, collisions
- Energy: work and energy, transfer of energy, conservation of energy
- Rotation: angular speed, torque
- Material properties: density, springs and elasticity, stress, strain,
- Fluids: hydrostatic pressure, hydraulic lift, buoyancy, Bernoulli's principle
- Thermodynamics: temperature, heat and heat transfer, gas laws
- Vibration and Waves: periodic motion, resonance, wave properties, sound
- Electricity and magnetism: Ohm's Law, circuits, magnetism, alternating currents