

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY  
PHY 101- 102 - INTRODUCTION TO PHYSICS I-II (4 CR.) (4 CR.)**

**Course Description**

Surveys general principles of physics. Includes topics such as force and motion, energy, heat, sound (PHY 101) light, electricity and magnetism, and modern physics (PHY 102). Involves using arithmetic and some simple algebra mostly in laboratory. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**General Course Purpose**

A college level course intended for students with non-technical majors who need a lab science. Students will gain an understanding of the physical principles involved in their everyday environment. The course will serve as an alternative physics course for those students having little or no algebra math skills.

**Course Prerequisites/Co-requisites**

For PHY 101, satisfactory placement score for ENG 111.  
For PHY 102, satisfactory placement score for ENG 111 and PHY 101.

**Course Objectives**

Upon completion of the course, the student should be able to:

- Understand the concepts as established in the study of physics beginning with Newtonian Mechanics and ending with atomic and nuclear physics
- Understand the methods of scientific reasoning as related to physics which will be useful in their chosen occupational field
- Acquaint him/herself with measurement and laboratory research methods
- Acquaint him/herself with the environmental impact of today's science and technology

**Major Topics to be Included**

**PHY 101**

- Newtonian Mechanics - velocity, acceleration, force, energy, momentum, and rotational motion
- Properties of Matter - density, fluid statics and dynamics, and elasticity
- Heat - methods of calorimetry, heat transfer, and laws of thermodynamics

**PHY 102**

- Wave Motion - sound, simple harmonic motion, transverse and longitudinal waves, and interference
- Electricity and Magnetism - electrostatics, Ohm's law, series and parallel circuits, DC and AC circuits, magnetism, electromagnetism, and power production
- Light - lenses and mirrors, ray optics, refraction, reflection, diffraction, optical instruments, interference and spectroscopy
- Atomic and Nuclear Physics - atomic structure, photon-quantum effects, atomic spectrum, natural radioactivity, nuclear fission and fusion, and nuclear power production