University Bulletin

Undergraduate Degree Programs

Physics (PHYS)

PHYS 151 (GN) Technical Physics II (3) Elementary treatment of topics in electricity, light, and modern physics leading toward an understanding of technical applications.

PHYS 151 Technical Physics II (3)
(GN)

PHYS 151, Technical Physics, provides an algebra-based introduction to electricity, light, and modern physics exemplifying scientific method and leading toward an understanding of technical applications. It is the second course in a two-course sequence with PHYS 150 surveying all of physics. It includes topics such as electric charge, electric force, electric field, electric potential difference, capacitance, cathode-ray tube, electric current, Ohm's Law, batteries, direct current circuits, resistors, ammeters, voltmeters, magnetic force, magnetic field, electromagnetic induction, motors, generators, transformers, inductors, alternating current circuits, electromagnetic waves, light, reflection, refraction, interference, diffraction, atomic physics, atoms in combination, and the nucleus.

Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report.

The prerequisite for this course is PHYS 150. It is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Class size varies up to about 80 students per lecture section and 24 students per lab/activity section.

Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

General Education: GN
Diversity: None
Bachelor of Arts: Natural Sciences
Effective: Fall 2001
Prerequisite: **PHYS 150(/bulletins/bluebook/university_course_descriptions.cfm?letter=P&courselong=PHYS|150|latest)**

Note : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.