PHYS& 222L: ENGINEERING PHYSICS II

Basic principles of electromagnetism, the mechanics of oscillatory motion, and experiments in these topics for physical science and engineering majors. (E)

Course Student Learning Outcomes

1. Describe, explain, and use Einstein's special theory of relativity solve relativistic motion problems, especially as relates to conservation of momentum and energy.
2. Describe, explain, and use concepts surrounding electric interactions for static charge distributions.
3. Describe, explain, and use concepts of electric fields in deriving and using Gauss's law, work, energy, and capacitance in solving electrical problems.
4. Describe, explain, and use concepts magnetism for permanent magnets and electromagnets, including changing electric and magnetic fields, and how this relates to special relativity.
5. Describe, explain, and use Maxwell's equations to understand changing electric and magnetic fields, especially in the context of AC circuits.
6. Design, carry out, and interpret experiments in the laboratory to answer electricity and magnetism questions during lab, as well on assessments.

Credits: 5
Prerequisites: MATH& 152, which may be taken concurrently; PHYS& 221L.
Program: Physics