

PH 202 : GENERAL PHYSICS II

Transcript title

General Physics II

Credits

5

Grading mode

Standard letter grades

Total contact hours

70

Lecture hours

40

Lab hours

30

Recommended preparation

MTH 112.

Course Description

Studies basic electrostatic and magnetic interactions. Builds on concepts from PH 201 and continues into electrostatic forces, electric field concepts, electric potential, basic DC circuit concepts, magnetic interactions and forces, sources of magnetic fields and Faraday's Law. Lab addresses concepts and measurements in thermal physics and continues to explore the processes by which science seeks answers to questions. Meets the basic requirements for many pre-health and life science programs. Should be taken in sequence.

Course learning outcomes

1. Identify the symbols and constants which are used to express concepts and laws.
2. Describe qualitative meaning of concepts and laws verbally, mathematically, and in writing.
3. Recognize application of concepts and laws to settings in daily life.
4. Apply concepts and laws appropriately to settings drawn from daily life.
5. Use concepts and laws successfully to predict or extrapolate the behavior of an object or system of objects.
6. Use graphical techniques to construct an equivalent alternative representation of the behavior of an object or system of objects.
7. Reinforce understanding through written descriptions and explanations of solution process.
8. Use concepts and laws to estimate a reasonable expectation for some physical value based on defensible evaluation of the physical parameters in the setting.
9. Integrate all of the above to construct a personal understanding of the relationship of this physics to the world.

Content outline

1. Static charge distributions on conductors and insulators
2. Coulomb's law for several charges in simple geometries

3. Magnetic forces on moving charges and currents
4. Right hand Rules
5. Electromagnetic fields relationship to electromagnetic forces
6. Conventions for graphical representations of fields
7. Superposition of vector fields due to multiple sources
8. Electric potential
9. Connection to e-fields and energy conventions for graphical representations
10. Basic sources of electric and magnetic fields
11. Point charges
12. Wires and loops (more right hand rules)

General education/Related instruction lists

- Science Lab