



ELECTROMAGNETISM, OPTICS, AND NUCLEAR PHYSICS



GENERAL PHYSICS TECHNICAL COURSE II

Electromagnetism, Optics, and Nuclear Physics serves as an introduction to electricity, magnetism, optics, waves, and quantum and nuclear physics. Students will explore how electric, magnetic, and electromagnetic effects arise from static, uniformly moving, and accelerating charges, respectively. Students will obtain practical experience with electrical circuits and optical devices, while also investigating modern physical phenomena including quanta of light (photons) and the properties of the atomic nucleus. Students will appreciate how scientific inquiry reveals the fundamental principles of the universe and how these principles are applied to the invention of technologies that shape the modern world. This is the second in a sequence of algebra-based (non-calculus) courses that fulfills a general physics requirement. Students will develop critical thinking, empirical, and quantitative skills through problem solving and analyzing physical situations.

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PHYSICS II

BIG IDEAS

ELECTRICITY

Electric force and fields, Gauss's Law, energy and potential, capacitance, current, resistance, and direct-current circuits

MAGNETISM

Magnetic force and fields, Ampere's Law, magnetic materials, Faraday's Law, magnetic induction, and alternating-current circuits

ELECTROMAGNETISM & OPTICS

Electromagnetic waves, reflection and refraction, mirrors and lenses, wave optics, and optical instruments

MODERN PHYSICS

Photons, quantum physics, and nuclear physics

TRANSFERABILITY

- 3 College Credits
- PHYS 1302
- UT PHY 302L

PRE-REQUISITES

Minimum:

- TEKS-based Physics course
- Algebra II, Geometry

Recommended:

- OnRamps PHY 302K, AP Physics 1, Honors Physics, or PHYS 1301
- Precalculus

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