

# PHYS& 223 : Engineering Physics III with Lab

**Credits** 5

**Quarter Offered** Spring

Electromagnetic waves, optics, waves in matter, and experiments in these topics for physical science and engineering majors. This class may include students from multiple sections. (Elective)

**Prerequisites**

Concurrent enrollment or successful completion of [MATH& 163](#), [PHYS& 222](#) or instructor permission

**Course Outcomes**

Describe, explain, and use the relationship between periodic motion and waves in one, two, and three dimensions to analyze and solve problems of energy transport.

Describe, explain, and use concepts of geometric optics to understand principles of wave vs particle optics, and analyze and solve problems about wave-particle duality.

Describe, explain, and use concepts relating to fluids to analyze and solve problems.

Describe, explain, and use principles of thermodynamics to solve thermodynamics problems, including entropy and energy degradation.

Design, carry out, and interpret experiments in the laboratory to answer electricity and magnetism questions during lab, as well on assessments.