

Fall 2012 Syllabus

Course Description

This course is as a calculus-based introduction to electromagnetism. Concepts of electric charge, field, and potential will be introduced, followed by a treatment of electric current, magnetism, and electromagnetic induction. After discussing Maxwell's equations, light will be described as an electromagnetic wave. Various topics in the physics light will be covered, including refraction, interference and diffraction. There will be an emphasis on in-class problem solving using similar techniques as required on homework and exams.

Instructor Formulated Student Learning Outcomes

It is expected that students should be able to incorporate physical concepts with mathematical techniques to solve problems in Electromagnetism and related topics. While only algebraic techniques will be required on exams, calculus will be utilized in the class discussion and in selected homework problems.

General Education Student Learning Outcomes

Students demonstrate basic facility with the methods and approaches of scientific inquiry and problem-solving.

University Curriculum(UC) required student learning outcomes(SLO).

Upon the successful completion of the class:

1. Students will be able to develop quantitative models appropriate to problems in Physics.
2. Students will be able to apply symbolic systems of representation.
3. Students will be able to formulate structured and logical arguments.

Week	Day	Topic
Week 1	Tue.- Aug.21	Introduction
	Thur.- Aug.23	Ch. 21- Electric charge
Week 2	Tue.- Aug.28	Ch. 21- Electric charge
	Thur.- Aug.30	Ch.22-Electric field
Week 3	Tue.- Sept. 4	Electric Field
	Thur.- Sept.6	Ch.23 -Gauss' Law
Week 4	Tue. - Sept. 12	Ch.23 -Gauss' Law

	Thur.- Sept.13	Ch.24–Electric Potential
Week 5	Tue.- Sept.18	Ch.24–Electric Potential , Ch.25- Capacitance
	Thur.- Sept.20	Ch.25- Capacitance
Week 6	Tue. – Sept. 25	Ch.25- Capacitance
	Thur.- Sept.27	Ch.26–Current and Resistance
Week 7	Tue.- Oct .2	Ch.27 - Circuits
	Thur.- Oct.4	Review
Week 8	Tue.- Oct.9	Exam 1
	Thur.- Oct.11	Ch.28 - Magnetic field
Week 9	Tue.- Oct.16	Fall Break
	Thur.- Oct.18	Ch. 29 Magnetic fields due to currents
Week 10	Tue.- Oct.23	Ch.30 – Induction and inductance
	Thur.- Oct.25	Ch.31 – Electromagnetic oscillations
Week 11	Tue.- Oct.30	Review
	Thur.- Nov.1	Exam 2
Week 12	Tue. - Nov. 6	Ch.32–Maxwell’s equation
	Thur. - Nov.8	Ch.33 – Electromagnetic waves
Week 13	Tue. - Nov.13	Ch. 35 Images

	Thur. - Nov.15	Ch.36 - Diffraction
	Tue. - Nov.20	Ch.36 - Diffraction
Week 14		
	Thur. - Nov.23	Thanksgiving Holiday
Week 15	Tue. - Nov.27	Review
	Thur. - Nov. 29	Review
		Final exam- comprehensive

Final exam: 30 points

Exams 2 exams: 20 points;

Homework :20 points

Lecture Quizzes: 10 points

**Total 100
points**