

Global Learning Initiatives Program Course Syllabus

Course Information

Course Name	Electromagnetism
Lecturer(s)	HUANG, CHEN-BIN
Course Description	<p>This is one of the core courses for the EE Department. The intent is to use rigorous mathematical expressions so that the students may appreciate experimentally observable phenomenon regarding static electric fields, steady electric current, static magnetic fields. The students will also learn the coupling between electric and magnetic fields that leads to time-varying electro-magnetic. The derivation and physical insight behind the Maxwell's Equations will be emphasized. The course contents are pivotal for later course such as electromagnetic waves, introduction to optical engineering, photonics, high-frequency circuit design, solid-state devices. Required background knowledge include: Calculus (I, II), vector analysis, Physics (I, II), Fourier transform.</p>
Course Objectives	<ul style="list-style-type: none"> • An ability to learn profound knowledge in mathematics, physics, and science, as well as to apply the knowledge to engineering problems. • An ability to design and conduct experiments, as well as to analyze data and interpret results. • An ability to use the theories, methods, techniques, and related necessary software/hardware tools for electrical engineering practice. • An ability to design electrical engineering systems, modules, components, or processes. • An ability to organize, communicate, and coordinate for teamwork. • An ability to identify, analyze, and solve problems. • An awareness of the technology trends and their human/environmental/social/global impacts. • An understanding of professional ethics and social responsibilities. • An ability to communicate professionally in a foreign language, as well as to interact with international communities.

Suggested Proficiencies (if any)	※ This course requires your total devotion. Preview and review are essential in keeping up!
Reading List (if any)	<u>Textbook:</u> David K. Cheng, Field and Wave Electromagnetics, Addison Wesley <u>Reference:</u> Transmission line: F. Ulaby, E. Michielssen, and U. Ravaioli, Fundamentals of Applied Electromagnetics, 6th edition, Pearson, 2010.
Grading Criteria	Homeworks (no late turn-in) (20%) Quizzes (25%) First examination (15%) Second examination (20%) Final examination (20%)

Course Schedule (To be announced)

Class	Date (YYYY/MM/DD)	Course Topic	Lecturer
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