UNIVERSIDAD PONTIFICIA ICAI ICADE COMILLAS MADRID

ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA

DIE-GITI-221 Electromagnetic Fields

SEMESTER: Spring

CREDITS: 6 ECTS (4 hrs. per week)

LANGUAGE: Spanish

DEGREES: GITI, GITT

Course overview

Survey of basic electromagnetic phenomena: electrostatics, magnetostatics, time varying fields and Faraday's law of induction, and electric and magnetic properties of matter.

Prerequisites

Introductory Physics.

Course Contents

1. Electrostatics: charges and fields.
2. The electric potential.
3. Electric fields around conductors.
4. Electric fields in matter (dielectrics).
5. Electric currents.
6. The magnetic field.
7. Electromagnetic induction.
8. Magnetic fields in matter.
9. Maxwell's equations and electromagnetic waves.

Textbook

- E. M. Purcell. Electricity and Magnetism, 2nd ed., Cambridge U. P., 2011

Grading

There will be one quiz, one midterm exam, and a final exam. The final exam will be cumulative, although the bulk of the exam will cover material from the last ten weeks of class.

The overall grade is obtained as follows:

- The quiz will be taken during the 4th week: 10% of the final grade.

- The midterm will be taken during the 8th week: 30% of the final grade.
- The final exam will be taken during the finals period: 60% of the final grade.