

Course Syllabus

Class time: M3M4W2

Location: Delta Room 209

Instructor: Chen-Bin Huang (robin@ee.nthu.edu.tw) Delta 859 Tel: 62180

Feel free to arrange office hour via e-mail.

Head-TA: Hao-Yun Liu (haoyunliu1118@gmail.com) Eng-III 119 Ext. 34007

Course Description:

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-magnetics. 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.

✘ This course requires your total devotion. Preview and review are essential in keeping up!

Textbook:

David K. Cheng, *Field and Wave Electromagnetics*, 2nd edition, Addison Wesley, 1989.

Reference: Transmission line: F. Ulaby, E. Michielssen, and U. Ravaioli, *Fundamentals of Applied Electromagnetics*, 6th edition, Pearson, 2010.

Class notes: Course materials available on <http://lms.nthu.edu.tw>

Teaching Method:

Lectures in English, discussions in English/Chinese.

National Tsing Hua University

10320 EE 214001 Electromagnetics

Course Content:

- Introduction and Transmission line
- Basic vector analysis
- Static electric fields and steady electric currents
- Static magnetic fields
- Maxwell's equations and Plane-wave propagation

Grading:

- Homeworks (no late turn-in) (20%)
- Quizzes (25%)
- First mid-term examination (15%)
- Second mid-term examination (20%)
- Final examination (20%)

Ethics policy:

As a student of NTHU, you are here to learn.

1. You should always bear honor and confidence in your mind. You should be responsible for your own grade and in a longer term, your future. You can start by finishing your own class assignments.
2. Plagiarism in any form is unacceptable. The plagiarist will receive a (-100)% for that assignment. I do, however, encourage discussions among classmates.
3. Misconducts during examinations will result in failure of this course.
4. Overly active club participation makes no excuse for late homework and/or missing exams.