

PME 3212 (2014 Fall)

電磁學 Electromagnetics

Lecture Time: W5W6W7

Lecture Room: 工程一館 Rm#430

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Students: Prerequisite of the courses "電磁波" and "電動機械".

Prerequisite: Engineering Mathematics

Course Content:

- (1) Introduction to Electromagnetics
- (2) The Electromagnetic Model
- (3) Vector Analysis
- (4) Static Electric Fields
- (5) Steady Electric Current
- (6) Static Magnetic Fields
- (7) Time-Varying Fields and Maxwell's Equations
- (8) Applications of Static Fields
- (9) Simulation Tool Lecture

Grading:

- (1) Homework: 30-40% (six to seven assignments)
- (2) Exam: 60-70% (prelims, final and project)
- (3) Some Homework will be included in Exam.

Notes on Website: <http://qmems.pme.nthu.edu.tw/> 裡面的課程目錄

Username: PME3212

Password: TBA

Course Tools

- (1) EM simulator: ANSOFT Maxwell EM (licensed version, server supported)
- (2) Hand-on Labs optional
- (3) Flat Panel/NB: lecture use.

Course Materials

- (1) Textbook
- (2) Course Notes
- (3) Handout

Textbook:

- (1) Chapters 1-7, Field and Wave Electromagnetics 2nd Ed., David K. Cheng, 1989 (1992 reprint), Addison Wesley

Reference:

- (1) Chapters 1-10, Engineering Electromagnetics, W. H. Hayt & J. A. Buck, 2001, McGraw-Hill (more content)
- (2) Chapter 6, Electromagnetic Field Theory Fundamentals, Guru & Hirizoglu, 1998, PWS (similar to previous one by D. K. Cheng)
- (3) Chapters 1-6, Introduction to Electrodynamics, D. J. Griffith, 1999, Prentice Hall (used in Department of Physics)
- (4) Chapters 1-2, Electromagnetics with Applications, J. Kraus & D. Fleisch, 1999 (more focus on wave propagation)
- (5) Chapters 1 - 6, Fundamentals of Engineering Electromagnetics, D. K. Cheng, 1993, Prentice Hall (easier vesion)

Remarks:

- (1) The course content will be similar to that offered at EE Department with additional case study particularly for PME students.
- (2) wk1 – 2014/09/17, wk16 – 2015/01/07
- (3) 停課: 2014/11/19 (全校運動會)
- (4) Exams: by chapter
 - 暫 2014/10/15 (1.5 hrs) – Vector Analysis
 - 暫 2014/11/12 (in class)
 - 暫 2014/12/10 (in class or at night)
 - 2015/01/14 (in class)
- (5) Pizza Hour: 2015/01/07