

# PME 3212 (2013 Fall)

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## 電磁學 Electromagnetics

Lecture Time: W5W6W7

Lecture Room: 工程一館 Rm#430

Instructor: 葉哲良 J. Andrew Yeh

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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: 50-60% (two prelims and one final)
- (3) Final/Project: 10-20%
- (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
- (3) Flat Panel NB: lecture use.

### Course Materials

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

### Textbook:

- (1) Chapters 1-7, Field and Wave Electromagnetics 2<sup>nd</sup> 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. Griffiths, 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) 停課: 2013/11/23 (全校運動會)、2014/01/01 (Holiday)
- (3) 期末考: 2014/01/15 (in class)
- (4) 期中考: 暫 2013/11/06 或/13 (in class) & 2013/12/11 (1-4 pm or 7-10 pm)
- (5) Pizza Hour: 2013/01/08