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EE214000 Electromagnetics, Fall, 2022

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EE 214000 Electromagnetics
國立清華大學電機工程科學系
Fall, 2022

Prof. 黃衍介

Class location: EECS 208
Class schedule: M3M4W2

Teaching Assistants (TAs): 孫紹偉 willysun6482@gmail.com tel: 03-5162333

General Information

This course is the first part of the electromagnetics taught for electric engineers, covering topics of electrostatics, magnetostatics, circuits, and time-varying fields etc. Initially we will review some mathematics (complex analysis, vector calculus) necessary for studying this subject.

The textbook chosen for this course is Field and Wave Electromagnetics by D. K. Cheng. As electromagnetics is a well-established knowledge, most other textbooks also serve well for the purpose of this course.

In the NTHU classroom, this course will be lectured mostly in English and slightly in Chinese for clarity.

This course is synchronized with the pre-recorded DELTAMOOCx at https://univ.deltamoox.net/courses/course-v1:AT+AT_031_1101+2021_09_13/about During the pandemic, whenever necessary, we might use this set of video recording for distance learning.

Usually, I will give a 2-hour lecture in English in the Monday class. Before each lecture (likely to be on each Friday), you will receive a review sheet for you to prepare and review the content to be lectured on Monday. After the class, you are encouraged to view the MOOCx course recordings by yourselves (lectured in Mandarin). In every Wednesday class, we will partition the class into a few groups to discuss the review sheet. Each student will receive a notification on which group to join prior to the Wednesday class. Our teaching assistants will lead discussions on review questions. I will move myself into different groups to answer questions. You have to turn in the review sheet electronically through the EECLASS by 10 pm on every Wednesday. Homework assignments will be given every 2-3 weeks.

How to view DELTAMOOCx Course Materials?

- Sign up at <https://univ.deltamoox.net/> to locate the on-line course



The screenshot shows the DELTAMOOCX website interface. At the top, there are navigation links: 'DELTA MOOCX', '新手上路', '所有課程', '成為SPOC老師', '聯絡我們', '註冊', and '登入'. Below this is a large banner for the course '電磁學(一)' (Electromagnetics I) from National Tsinghua University, taught by Professor Huang Yen-Chieh. The banner features images of plasma globes and magnetic field diagrams. To the right of the banner is a '最新消息' (Latest News) box containing the following text:

各位同學!!!
新學期課程可以開始報名囉!
09月14日開始上課, 31門優質
課程等您來拿證書!!!

- If you have any question about accessing it, you can click “新手上路” on <https://univ.deltamoox.net/>

Textbook

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

Reference book

Fawwaz T. Ulaby, Fundamentals of Applied Electromagnetics 6th Ed., PEARSON Prentice Hall, 2007. (新月圖書，東華書局代理)

Course Handouts: Electronic files can be found on the EECLASS. If you would like to have bound copies of it, please print it out from the website by yourselves.

Grading Policy:

Homework	10% (late homework not accepted)
Weekly review/quiz (open books/notes)*	30%
One midterm exam	30%
One final exam	30%

* weekly review/quiz includes those lectured, **to be lectured**, or assigned in homework.

* Review/Quiz (1) Review sheets will be distributed before Monday class and have to be turned in electronically by 10 pm on every Wednesday through **the EECLASS**. (2) Quiz will be distributed from time to time in a class in a paper form.

* In case we need to adjust scores in the end of the semester, your performance in quiz, question asking/answering, discussion, attendance in the class will become the weighting factor for the adjustment.

* Homework will be assigned every few weeks via posting on the EECLASS

Course Contents

Introduction, complex analysis, vector calculus, electrostatics, electric circuit, magnetostatics, magnetic circuit, time-varying field, and perhaps plane waves.

Course Schedule

Week 1 (Sep. 12, 14): Lectures 1, 2
Week 2 (Sep. 19, 21): Lecture 2, 3
Week 2 (Sep. 26, 28): Lecture 4
Week 3 (Oct. 3, 5): Lecture 5
Week 4 (Oct. 10, 12): Lecture 6 (students view the MOOCx tape)
Week 5 (Oct. 17, 19): Lecture 7
Week 6 (Oct. 24, 26): Lecture 8
Week 7 (Oct. 31, Nov. 2): Lecture 9
Week 8 (Nov. 7, 9): Lecture 10
Week 9 (Nov. 14, 16): Midterm Exam
Week 10 (Nov. 21, 23): Lecture 11
Week 11 (Nov. 28, 30): Lecture 12
Week 12 (Dec. 5, 7): Lecture 13
Week 13 (Dec. 12, 14): Lecture 14
Week 14 (Dec. 19, 21): Lecture 15
Week 15 (Dec. 26, 28): Lecture 16
Week 16 (Jan. 2, 4): Lecture 17
Week 17 (Jan. 9): Final exam

* Lecture # is synchronized with the MOOCx tapes

* No class on Sep. 28th, Oct. 10th, Nov. 16th, Jan. 2nd.

* Your work on the review sheets will strictly follow this schedule, but the progress of the lectures might vary due to various reasons. Prof. Huang spent a tremendous effort in pre-recording this class. In any case, students can view the pre-recorded MOOCx tapes to learn, even though the lectures could fall behind the schedules.