微波物理與應用(I) PHYS5370 (3 credits)
Microwave Physics and Applications (I)

Tsun-Hsu Chang (張存續)
教授
國立清華大學 物理系

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Textbook ：

David M. Pozar, Microwave Engineering, 3rd Edition (歐亞書局)
or 郭仁財教授翻譯中文版

References ：

- David K. Cheng, Field and Wave Electromagnetics, 2nd Edition.
- Robert E. Collin, Foundations for Microwave Engineering, 2nd Edition.

Time： Thursdays ~~(R7R8R9: 15:30–16:50 and 17:00–18:10)~~
(R6R7R8: 14:20–15:40 and 15:50–17:00) if you agree.

Classroom：Physics Building R019

Teacher： Professor Tsun-Hsu Chang (張存續)

Office: Physics Building 417R (Ext. 42978)
Lab: Physics Building 119R (Ext. 42560)

Fields of Interest:

- Development of Terahertz Sources and Devices
- Microwave Physics and Applications
- Microwave/Materials Interaction

Lecture Notes Download:
http://www.phys.nthu.edu.tw/~thschang/MWPA.htm
or http://www.phys.nthu.edu.tw/~hf5/

Schedule（depending on the students' condition）

週次	時間	上課內容
一	02/21(四)	Introduction to MWPA Chap.1 + Chap. 2 Transmission Line Theory
二	02/28(四)	和平紀念日
三	03/07(四)	Chap. 2 Transmission Line Theory
四	03/14(四)	Chap. 3 Transmission Line and Waveguides
五	03/21(四)	Characteristics of Waveguide Modes and Their Applications
六	03/28(四)	Chap. 4 Microwave Network Analysis
七	04/04(四)	民族掃墓節、兒童節
八	04/11(四)	Chap. 4 Microwave Network Analysis
九	04/18(四)	Excitation of a Specific Waveguide Modes
十	04/25(四)	Modal Analysis for Group Delay and Millimeter-Wave Diffraction
十一	05/02(四)	Chap. 5 Impedance Matching and Tuning
十二	05/09(四)	Chap. 5 Impedance Matching and Tuning
十三	05/16(四)	Chap. 6 Microwave Resonators
十四	05/23(四)	Open Cavity: Introduction and Simulation
十五	05/30(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十六	06/06(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十七	06/13(四)	Applications of Ferrite Materials to Circulator and Isolators
十八	06/20(四)	Return the 6-page term paper

How to evaluate students' performance?

- No mid-term and final exams are needed.
- Term-paper: Return a term-paper of six pages in IEEE-MTTs template (doc format). The topic of the term-paper is open. Any subject that related to this course is acceptable.
- Grading policy: The final score will be normalized to reflect an average consistency with other courses. It also depends on your attendance and participation.
- High attendance rate and active participation are highly encouraged. Total number of attendance: 15

  15→100%, 13→90%, 11→80%, 9→70%

Others

- The contents of this course are designed for senior and graduate level students. Only passive devices are addressed.
- This book shows that microwave circuits and devices can be explained through the use of circuit theory, Maxwell's equations, and related concepts.

- If you have any question, do not hesitate to raise your hand.
- Any comment on improving the pedagogy is more than welcome and is highly appreciated.