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

Textbook ：

David M. Pozar, Microwave Engineering, 3rd Edition.

References ：

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

Time： Thursdays (R7R8R9 15:20 –18:10 am)

Classroom：Physics Building R019

Teacher： Prof. 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/uPA.htm

Schedule (also depending on the students' learning status)

週次	時間	上課內容
一	02/24(四)	Introduction to MWPA Chap.1 + Chap. 2 Transmission Line Theory
二	03/03(四)	Chap. 2 Transmission Line Theory
三	03/10(四)	Chap. 3 Transmission Line and Waveguides
四	03/17(四)	Characteristics of Waveguide Modes and Their Applications
五	03/24(四)	Chap. 4 Microwave Network Analysis
六	03/31(四)	Chap. 4 Microwave Network Analysis
七	04/07(四)	Excitation of a Specific Waveguide Modes
八	04/14(四)	Modal Analysis for Group Delay Analysis and Millimeter-Wave Diffraction
九	04/21(四)	Micro-Fabrication of Terahertz Devices (special topic)
十	04/28(四)	Chap. 5 Impedance Matching and Tuning
十一	05/05(四)	Chap. 5 Impedance Matching and Tuning
十二	05/12(四)	Chap. 6 Microwave Resonators
十三	05/19(四)	Open Cavity: Introduction
十四	05/26(四)	Open Cavity: Simulation
十五	06/02(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十六	06/09(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十七	06/16(四)	Applications of Ferrite Materials to Circulator and Isolators
十八	06/23(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 (docx 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.

Others

- The contents of this course are designed for senior and graduate level students. Only passive devices are discussed.
- 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.