

中文課程名稱：電磁波

英文課程名稱：Electromagnetic wave

授課教師：江簡富

學分數：3 學分

開課單位：電機工程系

課程概述

以系統漸進的方式解說基本電磁波現象及原理，為認識廣泛的電磁應用及系統議題形塑基礎。

課程內容

Unit 1 : Basics of Transmission Lines

Unit 2 : Line Terminated by Resistive Load, Transmission Line
Discontinuity

Unit 3 : Lines with Nonlinear Load, Crosstalk between Two Lines

Unit 4 : Resonant Modes, Bilinear Transformation between Impedance
and Reflection Coefficient

Unit 5 : Single-stub and Double-stub Impedance Transformers

Unit 6 : Lossy Line and Diffusion Equation

Unit 7 : Potential Functions and Hertzian Dipole

Unit 8 : Uniform Plane Wave Propagation in an Arbitrary Direction,
Parallel-plate Waveguide

Unit 9 : Reflection and Refraction of Plane Waves, Dispersion and
Group Velocity

Unit 10 : Dielectric Slab Guide

Unit 11 : Rectangular Metallic Waveguide and Cavity Resonator

Unit 12 : Losses in Rectangular Metallic Waveguide and Cavity
Resonator, Radiation Properties of Hertzian Dipole and Array

課程要求

作業: 20% 期中考: 40% 期末考: 40%

預修課程: 基本物理學、微積分