

課程簡介 Course Introduction

開課班級 Department	電機工程學系
授課方式 Instructional Method	課堂教學、中文
課程代號 Course Reference Number	182093
課程名稱(中文) Course Title (Chinese)	電磁波相容與設計
課程名稱(英文) Course Title (English)	Electromagnetic Compatibility and Design
學分數/時數 Credit Hours	3 / 3
必(選)修 Requirement / Elective Course	選修
授課老師 Instructor	陳居毓

課程目標 Learning Objectives

- 1.Understand the basic concepts of EMC
- 2.Understand common crosstalk mechanisms in high-speed circuits
- 3.Understand the principles of signal integrity
- 4.Understand the concepts of electric and magnetic shielding
- 5.Understand how to compute the field radiated by simple wire structures

先修 (前置) 課程 Prerequisite

Signals and Systems
Electromagnetic field and wave

課程大綱 Course Syllabus

週次 Week	課程單元大綱 Unit	教學方式 Instructional Method/Style/Teaching Style	參考資料或相關作業 References or Related Materials	評量方式 Grading
1	Introduction to Electromagnetic Compatibility	lecture		
2	EMC Regulations	lecture		
3	Field Theory	lecture		
4	Spectrum and Transform	lecture		
5	Conducted EMI Issues: Part 1	lecture		
6	Conducted EMI Issues: Part 2	lecture		
7	Case study and discussion	Group discussion		
8	Midterm Exam.	2 hours test		
9	Antenna theory	lecture		

10	Communication system design	lecture
11	Matlab Simulation	Group discussion
12	Radiated Emission Issues: Part 1	lectures
13	Radiated Emission Issues: Part 2	lectures
14	Case study and discussion	Group discussion
15	Electrostatic Discharge Issues: Part 1	lectures
16	Electrostatic Discharge Issues: Part 2	lectures
17	Final Project and Presentation	Presentation
18	Final Exam.	2 hours test

單一課程對應校能力指標程度

The Degree to Which Single Course Corresponds to School Competence

編號 No.	校核心能力 School Core Competencies	符合程度 Degree of conformity
1	道德力 (Morality)	3
2	自學力 (Self-learning)	5
3	創造力 (Creativity)	5
4	溝通力 (Communication)	4
5	就業力 (Employability)	5

單一課程對應系能力指標程度

The Degree to Which Single Course Corresponds to Department Competence

代碼 No.	類別 Category	系核心能力 Department Core Competencies	符合程度 Degree of conformity
01	系所	運用數理、邏輯及基本電機之能力	5
02	系所	熟悉電機軟硬體專業技術之能力	4
03	系所	獨立思考、主動求知與研究創新之能力	5
04	系所	培養實作與分析實驗成果之能力	4
05	系所	理解社會責任與學術倫理之能力	3
06	系所	有效溝通表達與團隊合作之能力	3
07	系所	中英文語文及寫作之能力	3
08	系所	資訊蒐集、分析及彙整之能力	5

單一課程對應院能力指標程度

The Degree to Which Single Course Corresponds to College Competence

編號 No.	院核心能力 College Core Competencies	符合程度 Degree of conformity
1	語文能力	3
2	溝通與合作能力	3
3	創新與實踐能力	4
4	專業知能	5

教科書或參考用書(備註) Textbooks or Reference Books(Remarks)

- 1.Class notes
- 2.Henry W. Ott, Electromagnetic Compatibility Engineering, John Wiley & Sons, New York, 2009.
- 3.Clayton R. Paul, Introduction to Electromagnetic Compatibility, 2nd Edition, John Wiley & Sons, New York, 2005.

教學方法 Teaching Method

教學方法 Teaching Method	百分比 Percentage
講述	40.0
問題導向學習	30.0
影片欣賞	10.0
個案研討	20.0
總和 Total	100.0

成績評量方式(舊版) Grading

- Course participation 30%
Midterm Project 30%
Final Project 40%

成績評量方式 Grading

評量方式 Grading	百分比 Percentage
期中考	20.0
個人書面報告	20.0
個人口頭報告	20.0
期末考	20.0
作業撰寫	10.0
課堂參與	10.0
總和 Total	100.0