



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	電力電子學AA			學年/學期 Academic Year/Semester	113/1			
課程名稱(英文) Course Name in English	Power Electronics							
科目代碼 Course Code	EE_3280AA	系級 Department & Year	學三	開課單位 Course-Offering Department	電機工程學系			
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0					
授課教師 Instructor	/謝欣然							
先修課程 Prerequisite								

課程描述 Course Description

This course is learning about analysis and design of power electronic circuits, mainly focused on DC-DC converters, AC-DC rectifiers, and DC-AC inverters. Waveforms and specific values due to duty-ratio switching on power converters are described.

課程目標 Course Objectives

This course provides the theory and design of power electronics. Topics covered include an overview of power semiconductor, generic converter topologies and applications and switch-mode power supplies.

圖示說明Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	1. Introduction to evaluation rules for semester grade 2. Introduction to power switches of converters.	9/09
2	DC-to-DC converters I	9/16
3	DC-to-DC converters II	9/23
4	DC-to-DC converters III DC power supplies I	9/30
5	DC power supplies II	10/07
6	DC power supplies III Power computation	10/14
7	Half-wave rectifiers I	10/21
8	Half-wave rectifiers II	10/28
9	1st Exam (期中考試 Midterm Exam)	11/04
10	Full-wave rectifiers	11/11
11	AC voltage controllers I	11/18
12	AC voltage controllers II	11/25
13	2nd Exam (tentative)	12/02
14	Inverters	12/09
15	Resonant converters	12/16

16	Drive circuits, snubber circuits, and heat sinks	12/23
17	3rd Exan	12/30
18	Supplemental (Drive circuits, snubber circuits, and heat sinks)	1/06

教 學 策 略 Teaching Strategies

課堂講授 Lecture 分組討論 Group Discussion 參觀實習 Field Trip
 其他Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

問題導向學習 (PBL) 團體合作學習 (TBL) 解決導向學習 (SBL)

翻轉教室 Flipped Classroom 磨課師 Moocs

社會責任 (Social Responsibility)

在地實踐 Community Practice 產學合作 Industy-Academia Cooperation

跨域合作 (Transdisciplinary Projects)

跨界教學 Transdisciplinary Teaching 跨院系教學 Inter-collegiate Teaching

業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments						
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定
平時成績(含出缺席) General Performance (Attendance Record)	10%							
期中考成績 Midterm Exam								
期末考成績 Final Exam								
作業成績 Homework and/or Assignments								
其他 Miscellaneous (_____)								

評量方式補充說明

Grading & Assessments Supplemental instructions

Semester grade: 45% 25%, 30%(Homework)

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Power Electronics, McGraw-Hill, by D. W. Hart
(東華/新月書局代理)

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website (Including online teaching information.
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)