國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	電力電子實驗			學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Power Electronics Laboratory				
科目代碼 Course Code	EE__33670	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)	1.0/		
授課教師 Instructor	/謝欣然				
先修課程 Prerequisite					

課程描述 Course Description

Study on experimentation of power electronic converters. It contains Simulink simulations, analysis of solar panels, and power converter control

課程目標 Course Objectives

運用電腦模擬與實際硬體電路實驗方式，認識電力電子元件特性、電源轉換器設計、以及電動機驅動電路設計與測試方式。

	系專業能力 Basic Learning Outcomes	課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	培育具備工程、應用數學與物理科學等數理知識之基本能力。To cultivate the basic knowledge of engineering, applied mathematics and physics	●
B	培育系統分析、模擬驗證、實作實現之能力。To cultivate the basic ability of analysis, verification and implementation of systems.	●
C	訓練軟體工具使用與硬體實務驗證相互輔助之能力。To train the auxiliary ability between the utilization of software tool and the verification of the hardware practice	●
D	訓練電機本知學能技術與工程實務相互結合運用之能力。To train the integrate ability between professional instinct in learning technique and engineering practice.	●
E	落實專題製作之群體合作與團隊競爭之能力。To fulfill the ability of group cooperation and teamwork competition.	●
F	落實發掘問題、邏輯分析、克服瓶頸與持續學習之能力。To fulfill the ability of question finding, logical analyzing, bottleneck overcoming and continuous learning	●
G	了解學術倫理與智慧財產觀念，掌握產業更迭需求與具備多元專長之能力。To obtain the ability of multi-specialization and to meet the industry demand as well as to have the ability of academic ethics and concept of intellectual property	○
H	了解國內外市場變化，具備基本科技英文閱讀溝通之能力。To understand the change of global market and the have the basic ability of reading and conversation in English.	○

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	課程簡介, 評量方式介紹, 實驗分組	02/20
2	電腦模擬軟體操作	02/27

3	直流轉換器模擬與穩壓控制(I)	03/05
4	直流轉換器模擬與穩壓控制(II)	03/12
5	太陽能板光電特性實驗, short-circuit test, open-circuit test, and efficiency	03/19
6	太陽能板輸出功率特性(I), PV & IV curves	03/26
7	太陽能板輸出功率特性(II), PV & IV curves	04/02
8	太陽能板輸出電壓轉換控制設計(I)	04/09
9	Suspending due to exam week (期中考試週 Midterm Exam)	04/16
10	太陽能板輸出電壓轉換控制設計(II)	04/23
11	太陽能板輸出電壓轉換控制設計(III)	04/30
12	分組實驗專題(I)	05/07
13	分組實驗專題(II)	05/14
14	分組實驗專題(III)	05/21
15	期末專題報告 I	05/28
16	期末專題報告 II	06/04
17	實驗專題分析與討論 I	06/11
18	實驗專題分析與討論 II	06/18

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	其他
平時成績 General Performance	20%								
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 grading: 50%(分組專題), 30%(實驗操作與說明), 20%(平時成績/出缺席)

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.)

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)