



教學計劃表 Syllabus

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| 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 |

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|----|---|-------|
| 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 Industry-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) | | | | | | | | | |