## ② 国立東華大學 教學計劃表 Syllabus

Cour	課程名稱(中文) cse Name in Chinese	高等電機控制			學年/學期 Academic Year/Se	112/2				
Cour	課程名稱(英文) Course Name in English Advanced Electric Motor Drives and Control									
	科目代碼 Course Code	EED0250	雷	電機工程學系						
	修別 Type	選修 Elective 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										
The objective of this course is about analysis and control of power electronic converters and electric motor drives. Circuits design with power switches and pulse-width modulation techniques is studied, and the proportional-intergarl (PI) controller and advanced control approches will be explored in detail. From this course, students will know about analysis and design of power circuits and controllers for dc and ac motor drives.										
		課	程目標 Cour	se Objec <sup>.</sup>	tives					
Combined with the advanced power electronics, microprocessor technologies and control theories, the electric motor drives have become sophisticated, and make many high-performance industrial applications possible. Therefore, for the graduated students major in electric power and control, the knowledge of the modern technologies of the electric motor drives is necessary. 課程目標與系專業能 力相關性										
条專業能力 Basic Learning Outcomes						Cor	relation between urse Objectives and Dept.'s Education Objectives			
A	A 培育具備電機電子資訊工程等專業技術研發之能力。To cultivate the research and developing ability of electrical electronics and information engineering。									
В	培育系統分析、模擬驗證 analysis, verification	、實作實現之能力 and implementati	• To cultivate on of systems	the advan	ced ability of		$\bigcirc$			
C	il線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	訓練電機電子資訊專業知言 between professional EF	識與工程實務相互。 ECS knowledge and	結合運用之能力。 l engineering p	• To train ractice •	the integrate abilit	ty	•			
E	落實高科技研究之分工整合與團體合作之領導能力。To fulfill the leading ability in high -tech research with integration and teamwork cooperation。									
F	落實發掘問題、邏輯分析 finding, logical analyz	邏輯分析、克服瓶頸與持續學習之能力。To fulfill the ability of question Il analyzing, bottleneck overcoming and continuous learning。								
G	了解學術倫理與智慧財產觀念,掌握國內外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	参與國際研討會了解國際市場變化與未來研究走向,具備純熟科技英文閱讀溝通寫作之能力。To participate the conferences to understand the change of global market and the future trend as well as to have the skillful ability of reading, conversation and technical writing 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	Introduction to semester grading method Introduction to electric machines control	02/22					
2	Study on power electronics: DC-DC converters I	02/29					
3	Study on power electronics: DC-DC converters II	03/07					
4	Study on power electronics: DC-AC converters I	03/14					
5	Study on power electronics: DC-AC converters II	03/21					
6	Pulse-width modulation technology	03/28					
7	Suspended due to holiday	04/04					
8	Oral presentation #1	04/11					
9	DC machines control I	04/18					
10	DC machines control II	04/25					
11	DC machines control III	05/02					
12	Oral presentation #2	05/09					
13	AC machines control I	05/16					
14	AC machines control II	05/23					
15	AC machines control III	05/30					
16	Oral presentation #3	06/06					
17	Special issues on motor drives control I	06/13					
18	06/20						
	教學策略 Teaching Strategies						
<ul> <li>✓ 課堂講授 Lecture</li> <li>✓ 分組討論Group Discussion</li> <li>◆觀實習 Field Trip</li> <li>其他Miscellaneous:</li> </ul>							
新島創新白 証 Togehing Salf-Evaluation							
創新教學(	Innovative Teaching)						
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L」 社會責任(Social Responsibility)							
「在地實踐Community Practice」」 産學合作 Industy-Academia Cooperation							
□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									
Items	Percentage	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									
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									
Presentation: 30%, 30%, 40%									
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, by Hart Modern Power Electronics and AC Drives, by B.K. Bose Electric Motor Drives: Modeling, Analysis, and Control, by R. Krishnan									
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)									