國立東華大學
教學計劃表　Syllabus

課程名稱(中文) Course Name in Chinese	柔性計算系統實務			學年/學期 Academic Year/Semester		114/1
課程名稱(英文) Course Name in English	Realization of Soft Computing Systems					
科目代碼 Course Code	AIIA50250	系級 Department & Year	碩士	開課單位 Course-Offering Department		資訊工程學系
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)		3.0/3.0		
授課教師 Instructor	/黃振榮					
先修課程 Prerequisite						

課程描述　Course Description

本課程針對資訊工程系研究生有志於在柔性計算領域發展的學生，建立柔性計算的相關理論基礎與實務，藉以激發學生對柔性計算的興趣並能將其技術應用於未來的工作或研究。課程將包含演講、Weka軟體的操作、個人報告。
This course introduces the concepts and algorithms that are developed in the fields of Soft computing which uses soft computational techniques in machine learning and artificial intelligence to study and model complex phenomena. The course will consist of lectures, Weka demos, and paper reviews.

課程目標　Course Objectives

This course aims to build up the theoretical foundation of soft computing systems for PhD students of the Department of Computer Science & Information Engineering who are interested in developing their career in the field of soft computing systems and to introduce the state-of-art technologies related to soft computing systems in the literature in order to enhance students' innovative and practical skills in the design of soft computing systems.

	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	統合資工知識技術之能力Ability to integrate knowledge and technologies of computer science and information engineering.	●
B	設計技術理論驗證實驗之能力Ability to design and conduct science experiments and to validate hypotheses.	●
C	資訊軟硬體設計開發之能力Ability to design and develop computer software and hardware.	●
D	團隊專案開發之能力Ability to design and develop team projects.	○
E	批判性思考與創新研發之能力Ability of analytical thinking, creative research planning, and innovative development.	○

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	
2	Machine learning and statistic	
3	Divide-and-conquer: Constructing decision trees	

4	Covering algorithms: Constructing rules	
5	中秋節 Mid-Autumn Festival	
6	Comparing data mining methods	
7	Classification algorithms I	
8	Classification algorithms II	
9	期中考試週 Midterm Exam	
10	Clustering algorithms	
11	Introduction to Weka	
12	The UI of Weka software	
13	Data preprocessing with Weka	
14	Classification with Weka	
15	Clustering with Weka	
16	Result analysis with Weka	
17	期末考試週 Final Exam	
18	Online Weka demo	

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	30%		✓	✓					
期中考成績 Midterm Exam	40%	✓							
期末考成績 Final Exam	40%	✓							
作業成績 Homework and/or Assignments									
其他 Miscellaneous (＿＿＿＿＿)									

評量方式補充說明
Grading & Assessments Supplemental instructions

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.)

Data Mining: Practical Machine Learning Tools and Techniques. 4th, by Ian Witten, Eibe Frank, Mark Hall, and Christopher Pal, 2016, Morgan Kaufmann, ISBN: 9780128042915

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.)

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其他補充說明 (Supplemental instructions)