國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	最佳化與決策專題			學年/學期 Academic Year/Semester	113/1
課程名稱(英文) Course Name in English	Topics on optimization and decision making				
科目代碼 Course Code	AIIA50200	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	/高韓英				
先修課程 Prerequisite					

課程描述 Course Description

This course aims to build the capability in multi-criteria/ multi-objective decision making and soft computing.
The syllabus covers several key areas, including optimization, multi-criteria/ multi-objective decision making, optimization in classification, etc.
Besides lectures, paper reading and discussions are required. One of the goals is to help the students get prepared for their thesis development.

課程目標 Course Objectives

This course is an advanced course that explores specific topics in optimization and decision-making models, which serve as preparation for related research.

	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 to optimization (1)	9/9
2	Introduction to optimization (2)	9/16
3	Introduction to multi-criteria decision making (MCDM)	9/23
4	Introduction to Multi-objective decision making (MODM)	9/30

5	Introduction to Multi-objective decision making (MODM)	10/7
6	Introduction to fuzzy sets and theory	10/14
7	Fuzzy optimization	10/21
8	Fuzzy MODM	10/28
9	期中考試週 Midterm Exam	11/4
10	Graphical decision models	11/11
11	Optimization and machine learning	11/18
12	Optimization and machine learning	11/25
13	Advanced topics	12/92
14	Advanced topics	12/9
15	Advanced topics	12/16
16	Advanced topics	12/23
17	期末考試週 Final week	12/30
18	彈性補充教學	1/6/2025

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	10%		✓	✓					
期中考成績 Midterm Exam	30%	✓	✓	✓	✓				
期末考成績 Final Exam	30%	✓	✓	✓	✓				
作業成績 Homework and/or Assignments	30%	✓	✓	✓	✓				
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.)

selected papers and materials on multi-criteria/multi-objective decision making

Hillier and Lieberman, Introduction to Operations Research, 10th edition, 2015

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)