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## ②图玄束華大學

# 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/Se	113/1		
課程名稱(英文) Course Name in English	Topics on optimization and decision making						
科目代碼 Course Code	A11A50200	条級 Department 碩士 & Year		開課單位 Course-Offering Department	資訊工程學系		
修別 Type	選修 Elective	學分數/時 Credit(s)/Hou		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.	0
В	設計技術理論驗證實驗之能力Ability to design and conduct science experiments and to validate hypotheses.	•
С	資訊軟硬體設計開發之能力Ability to design and develop computer software and hardware.	0
D	團隊專案開發之能力Ability to design and develop team projects.	0
Е	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	✓ 課堂講授 Lecture ✓ 分組討論Group Discussion    參觀實習 Field Trip						
 其他Mis	scellaneous:						
	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							
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	多元評量方式 Assessments								
Items	配分比例 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	10%		~	~					
期中考成績 Midterm Exam	30%	<b>~</b>	~	~	~				
期末考成績 Final Exam	30%	<b>~</b>	~	~	~				
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)