



## 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	CSIEM0050	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				
<p>This course aims to build the capability in multi-criteria/ multi-objective decision making and soft computing.</p> <p>The syllabus covers several key areas, including optimization, multi-criteria/ multi-objective decision making, optimization in classification, etc.</p> <p>Besides lectures, paper reading and discussions are required. One of the goals is to help the students get prepared for their thesis development.</p>				
課程目標 Course Objectives				
<p>This course aims to build the capability in multi-criteria/ multi-objective decision making and soft computing.</p> <p>The syllabus covers several key areas, including optimization, multi-criteria/ multi-objective decision making, optimization in classification, etc.</p> <p>Besides lectures, paper reading and discussions are required. One of the goals is to help the students get prepared for their thesis development.</p>				
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	12/9
14	Advanced topics	12/16
15	Advanced topics	12/23
16	Advanced topics	12/30
17	期末考試週 Final week	1/6/2025
18	彈性補充教學	

### 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:

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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)