



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	最佳化方法與應用			學年/學期 Academic Year/Semester	114/2			
課程名稱(英文) Course Name in English	Optimization Methods and Applications							
科目代碼 Course Code	CSIEM0380	系級 Department & Year	碩士 Master	開課單位 Course-Offering Department	資訊工程學系 College of Computer Science and Technology			
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

培養最佳化理論基礎、建立最佳化模式與解題能力。

課程目標 Course Objectives

建立最佳化知識概念，並培養建立模式與解題的能力。Build the essential concepts of optimization. Develop the ability of optimization modelling and problem-solving.

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.	<input type="circle"/>
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.	<input checked="" type="circle"/>
C	資訊軟硬體設計開發之能力 Ability to design and develop computer software and hardware.	<input type="circle"/>
D	團隊專案開發之能力 Ability to design and develop team projects.	<input type="circle"/>
E	批判性思考與創新研發之能力。Ability of analytical thinking, creative research planning, and innovative development.	<input checked="" type="circle"/>

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	Break 放假	2/27*
2	Introduction to optimization/Operations research and Linear Programming	3/6
3	Solving Linear Programming Problems: The Simplex Method	3/13
4	Duality Theory and Sensitivity Analysis	3/20
5	Integer Programming	3/27
6	Break 放假	4/3*

7	Nonlinear Programming	4/10
8	The Transportation and Assignment Problems	4/17
9	期中考試週 Midterm Exam	4/24
10	Break 放假	5/1*
11	Network Optimization Models	5/8
12	Multi-criteria decision making	5/15
13	Introduction to metaheuristics	5/22
14	Advanced topics and paper study	5/29
15	Advanced topics and paper study	6/5
16	期末考試週 Final Exam	6/12
17	Break 放假	6/19*
18	Break 放假	6/26*

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
 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(含出缺席) General Performance (Attendance Record)	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.)

Hillier and Lieberman, Introduction to Operations Research, 10/e, McGraw-Hill Education.

Winston, Operations Research: Applications & Algorithms 4/e, Thomson.

Linus Schrage, Optimization Modeling with LINGO, LINDO SYSTEMS.

Selected papers, etc

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)