國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	最佳化方法與應用			學年/學期 Academic Year/Semester	112/2
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	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

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.	○
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	Overview of the Operations Research Modeling Approach	2/19
2	Introduction to Linear Programming	2/26
3	Solving Linear Programming Problems: The Simplex Method	3/4
4	Duality Theory and Sensitivity Analysis	3/11
5	The Transportation and Assignment Problems	3/18
6	Network Optimization Models	3/25

7	Dynamic Programming	4/1
8	Break 放假	4/8
9	期中考試週 Midterm Exam	4/15
10	Integer Programming	4/22
11	Nonlinear Programming	4/29
12	Multi-criteria decision making	5/6
13	Advanced topics and paper study	5/13
14	Advanced topics and paper study	5/20
15	Advanced topics and paper study	5/27
16	Advanced topics and paper study	6/3
17	Break 放假	6/10
18	期末考試週 Final Exam	1/15/2021

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.)

Hillier and Lieberman, Introduction to Operations Research, 10/e, McGraw-Hill Education.
喻奉天譯, 作業研究, 10/e (Hillier: Introduction to Operations Research, 10/e), 東華, 2019.
Winston, Operations Research: Applications & Algorithms 4/e, Thomson.
Anderson, et al., An Introduction to Management Science, 15/e, Cengage.
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)