

 國立東華大學
教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	網路分析與應用			學年/學期 Academic Year/Semester	113/2
課程名稱(英文) Course Name in English	Network Analysis and Applications				
科目代碼 Course Code	GSLM52500	系級 Department & Year	碩士	開課單位 Course-Offering Department	運籌管理研究所
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)		3.0/3.0	
授課教師 Instructor	/陳怡君				
先修課程 Prerequisite					
課程描述 Course Description					
This course is designed to let the students familiar with the basic concepts of network-based operations research, including shortest path problems, maximum flow problems, minimum cost flow problems, and multi-commodity flow problems. Students will learn how to formulate and model these problems and to obtain and analyze the solutions. Prerequisites: Basic knowledge of linear programming will be a plus.					
課程目標 Course Objectives					
介紹運輸網路均衡分析(Transportation Network Equilibrium Analysis)，及常用的網路流量問題，包含最大流量問題(Maximum Flow Problem)、最小成本流量問題(Minimum Cost Flow Problem)及多元商品流量問題(Multicommodity Flow Problem)等。					
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	基礎運籌、供應鏈管理知識Foundations on logistics and supply chain management				○
B	運籌系統管理知識 Knowledge on logistics system management				●
C	運籌工具方法知識 Knowledge on analytical tools and methodologies in logistics				●
D	語文表達能力 Language and communication skills				○
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 Network Models				
2	Network Representations				
3	Graph Search Algorithms				
4	Transformations and Flow Decomposition				
5	Shortest Paths: Label Setting and Correcting Algorithms				

6	Augmenting Path Algorithms for the Maximum Flow Problem	
7	Network Simplex Methods	
8	Network Simplex for Transportation problem	
9	期中考試週 Midterm Exam	
10	Minimum Cost Flows: Basic Algorithms	
11	Minimum Cost Spanning Trees	
12	Multi-commodity Flows	
13	Lagrangian Relaxation	
14	Network Meta-Heuristics	
15	Network Meta-Heuristics	
16	Final Presentation	
17	期末考試週 Final Exam	
18	The 18th week for alternative curriculum	

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:

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)									
期中考成績 Midterm Exam									
期末考成績 Final Exam									
作業成績 Homework and/or Assignments									
其他 Miscellaneous (_____)									
評量方式補充說明 Grading & Assessments Supplemental instructions									
20% Class Participation & Homework 20% Final Presentation 30% Midterm Exam 30% Final Exam.									
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.)									
Ahuja, R. K., Magnanti, T. L., Orlin, J. B., 1993. Network Flows - Theory, Algorithms, and Applications. Prentice-Hall, Englewood Cliffs, NJ.									
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)									