



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	次世代行動網路技術與應用		學年/學期 Academic Year/Semester	112/1
課程名稱(英文) Course Name in English	Next Generation Mobile Networks: Emerging Technologies and Applications			
科目代碼 Course Code	CSIEM0590	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	/黃振榮			
先修課程 Prerequisite				
課程描述 Course Description				
This course is designed for graduate students who are interested in the field of next-generation mobile networks. It builds the theoretical foundation of mobile networks and introduces the literature on next-generation mobile network technologies and the latest development trends. This course includes lectures, paper presentations, and project work.				
課程目標 Course Objectives				
This course aims to build up the theoretical foundation of next-generation mobile network technology for graduate students who are interested in the development of next-generation mobile network technology and introduce the latest next-generation mobile network related technologies in the literature.				
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 next-generation mobile networks (1)			
2	Introduction to next-generation mobile networks (2)			
3	New network architectures in 6G			
4	Rate-Splitting (Multiple Access) for 6G			
5	Double Ten Festival			

6	Reconfigurable Intelligent Surface	
7	Extremely ultra-reliable and low-latency communications	
8	Integrating UAVs into next-generation mobile networks	
9	Midterm Exam	
10	Quality of Service (QoS) and Quality of Experience (QoE) support	
11	Implementation and applications of future Internet of mobile things	
12	Network self-configuration and self-organization	
13	Adaptive allocation of distributed learning tasks in heterogeneous mobile edge learning environments	
14	Implementing machine learning over wireless edge networks	
15	Artificial Intelligence (AI) application for 6G communications	
16	Federated learning for next-generation mobile networks	
17	Final Exam	
18	Online teaching materials	

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 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.)

1. Kurose, J. F. & Ross, K. (2021) Computer Networking, 8th Edition, Pearson.
2. Božanić, M. and Sinha, S. (2021) Mobile Communication Networks: 5G and a Vision of 6G. Springer.
3. Fitzek, F. H., Granelli, F., & Seeling, P. (Eds.). (2020). Computing in Communication Networks: From Theory to Practice. Academic Press.
4. Selected papers and materials on next generation mobile networks.

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.)

線上教學位址: https://teams.microsoft.com/l/team/19%3aJqPWiyCbSooGXz3LTRGk36MS1A52qQ_WPc1JekrLLYo1%40thread.tacv2/conversations?groupId=bebce38-e650-4225-9c73-8e5316982de9&tenantId=edba3211-8174-4411-b089-357c588fa127

其他補充說明 (Supplemental instructions)