

國立中山大學 112學年度第2學期 課程教學大綱

National Sun Yat-sen University 112Academic year Course syllabus

中文名稱 Course name(Chinese)	計算機網路	課號 Course Code	EE5310
英文名稱 Course name(English)	COMPUTER NETWORK		
課程類別 Type of the course	講授類	必選修 Required/Selected	選修
授課教師 Instructor	許蒼嶺	系所 Dept./faculty	電機工程學系碩士班
		學分 Credit	3

因應嚴重特殊傳染性肺炎(武漢肺炎)，倘若後續需實施遠距授課，授課方式調整如下：

- 同步遠距【透過網路直播技術，同時進行線上教學，得採Microsoft Teams、Adobe connect等軟體進行】
- 同步遠距含錄影【透過網路直播技術，同時進行線上教學並同時錄影，課程內容可擇日再重播，得採Microsoft Teams、Adobe connect等軟體進行】
- 非同步遠距【課堂錄影或錄製數位教材放置網路供學生可非同時進行線上學習，得採EverCam、PPT簡報錄影、錄音方式進行】
- 實作類課程，經評估無法採遠距課程教學，後續復課後密集補課

★遠距教學軟體操作說明連結

因應嚴重特殊傳染性肺炎(武漢肺炎)，倘若後續需實施遠距授課，評分方式調整如下：

1. Midterm Exam : 30%
2. Final Exam : 40%
3. Report : 30%

課程大綱 Course syllabus

1. Overview of Data Networks and Protocols
2. Wireless Transmission and Communications
3. WiFi vs 4G/5G/6G
4. Personal Area Networks (BlueTooth, Sensors, RFID)
5. Transport Protocols
6. Internet Protocols
7. Integrated and Differentiated Services
8. Protocols for QoS Support
9. SDN, NFV, Network Slicing, Mobile Edge Computing

課程目標 Objectives

Provide graduate students an advanced study in networking protocols and wireless technologies.

授課方式 Teaching methods

lectures

評分方式 (評分標準及比例) Evaluation (Criteria and ratio) [等第制單科成績對照表 letter grading reference](#)

1. Midterm Exam : 30%
2. Final Exam : 30%
3. Projects : 40%

參考書/教科書/閱讀文獻 Reference book/ textbook/ documents

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序號	作者	書名	出版社	出版年	出版地	ISBN#
No.	Author	Title	Publisher	Year of publish	Publisher place	ISBN#
1	Ying-Dar Lin, Ren-Hung Hwang, and Fred Baker	Computer Networks: An Open Source Approach	McGraw-Hill International Edition	2022	USA	978-0-07-131587-6

彈性暨自主學習規劃 Alternative learning periods

本門課程是否有規劃實施學生彈性或自主學習內容 (每1學分2小時)

Is any alternative learning periods planned for this course (with each credit corresponding to two hours of activity)?

否：教師需於「每週課程內容及預計進度」填寫18週課程進度 (每1學分18小時之正課內容) 。

No: The instructor will include an 18-week course plan in the weekly scheduled progress (each credit corresponds to 18 hours of instruction)

是：教師需於「每週課程內容及預計進度」填寫16週課程內容 (每1學分16小時之正課內容)，並於下列欄位填寫每1學分2小時學生彈性或自主學習內容。

Yes: The instructor will include a 16-week course plan in the weekly scheduled progress (each credit corresponds to 16 hours of instruction);

the details of the planned alternative learning periods are provided below (each credit corresponds to two hours of activity).

本門課程規劃學生彈性或自主學習內容 (每1學分2小時)：

Alternative learning periods planned for the course (each credit corresponds to two hours of activity):

學生彈性或自主學習活動 Alternative learning periods	勾選或填寫規劃內容 Place a check in the appropriate box or provide details	時數 Number of hours
學生分組實作及討論 Group work and discussion	<input checked="" type="checkbox"/> Read papers	2
參與課程相關作業、作品、實驗 Participation in course-related assignments, work, or experiments	<input checked="" type="checkbox"/> Presentation	2
參與校內外活動 (研習營、工作坊、參訪) 或競賽 Participation in on- or off-campus activities (e.g., seminars, workshops, and visits) or competitions	<input checked="" type="checkbox"/> Visiting	2
課外閱讀 Extracurricular reading	<input type="checkbox"/>	
線上數位教材學習 Learning with online digital learning materials	<input type="checkbox"/>	
其他 (請填寫規劃內容) Other (please provide details)	<input type="checkbox"/>	

每週課程內容及預計進度 Weekly scheduled progress

週次	日期	授課內容及主題
Week	Date	Content and topic
1	2024/02/18~2024/02/24	Overview of Data Networks and Protocols
2	2024/02/25~2024/03/02	Application Protocols-Video Streaming
3	2024/03/03~2024/03/09	Linux Sockets
4	2024/03/10~2024/03/16	Transport Protocols (TCP)
5	2024/03/17~2024/03/23	Transport Protocols (TCP)
6	2024/03/24~2024/03/30	Internet Protocols (IP)
7	2024/03/31~2024/04/06	Congestion Control
8	2024/04/07~2024/04/13	期中考試
9	2024/04/14~2024/04/20	Integrated and Differentiated Services
10	2024/04/21~2024/04/27	Protocols for QoS Support (RTP/RTCP)
11	2024/04/28~2024/05/04	Wireless Communication Technologies
12	2024/05/05~2024/05/11	Wireless LANs (Wi-Fi)
13	2024/05/12~2024/05/18	Cellular Networks-4G/5G/6G
14	2024/05/19~2024/05/25	Personal Area Networks (Bluetooth, Sensors, RFID)
15	2024/05/26~2024/06/01	SDN, Network Slicing, and MEC
16	2024/06/02~2024/06/08	期試末考
17	2024/06/09~2024/06/15	彈性自主學習
18	2024/06/16~2024/06/22	彈性自主學習

課業討論時間 Office hours

時段1 Time period 1:
 時間 Time : 星期二10:00-12:00
 地點 Office/Laboratory : EC8010
 時段2 Time period 2 :
 時間 Time : 星期三10:00-12:00
 地點 Office/Laboratory : EC8010

系所學生專業能力/全校學生基本素養與核心能力 basic disciplines and core capabilities of the department and the university

系所學生專業能力/全校學生基本素養與核心能力 basic disciplines and core capabilities of the department and the university	課堂活動與評量方式 Class activities and evaluation										
	本課程欲培養之能力與素養 This course enables students to achieve.	紙筆考試或測驗 Test.	課堂討論(含個案討論) Group discussion (case analysis).	個人書面報告、作業、作品、實驗 Individual report/assignment/work or experiment. 個人書面報告、作業、作品、實驗 Individual paper rep	群組書面報告、作業、作品、實驗 Group paper report/assignment/work or experiment. 群組書面報告、作業、作品、實驗 Group paper rep	個人口頭報告 Individual oral presentation.	群組口頭報告 Group oral presentation.	課程規劃之校外參訪及實習 Off-campus visit and internship. 課程規劃之校外參訪及實習 Off-campus visit and intership.	證照/檢定 License.	參與課程規劃之校內外活動及競賽 Participate in off-campus/on-campus activities and competitions.	課外閱讀 Outside reading.
※系所學生專業能力 Basic disciplines and core capabilities of the department											
1.具備前瞻性電機專業理論整合與分析之能力。 1. The ability to be proactive integration and analysis of professional motor theory.	V		V	V							
2.具備運用先進電機專業技術進行研發並解決問題之能力。 2. The ability to apply advanced motor research and development expertise and solving problems.	V		V	V							
3.能夠遵守專業倫理，並具備團隊合作精神與領導統御之能力。 3. Be able to comply with professional ethics and the ability to teamwork and leadership skills.											
4.能夠融合眾人智慧並提昇自我潛能，以具備獨立思考與研究創新之能力。 4. Be able to integrate the wisdom of the people and enhance their potential to have the ability to think independently											

- SDG9-工業、創新和基礎建設(Industry,Innovation and Infrastructure)
- SDG10-減少不平等(Reduced Inequalities)
- SDG11-永續城市(Sustainable Cities and Communities)
- SDG12-責任消費與生產(Responsible Consumption and Production)
- SDG13-氣候行動(Climate Action)
- SDG14-海洋生態(Life Below Water)
- SDG15-陸域生態(Life on Land)
- SDG16-和平、正義和穩健的制度(Peace,Justice And Strong Institutions)
- SDG17-促進目標實現的全球夥伴關係(Partnership for the Goals)
- 本課程和SDGS無關

本課程校外實習資訊: This course is relevant to internship:

本課程包含校外實習 (本選項僅供統計使用,無校外實習者,得免勾記)
The course includes internship.(For statistical use only. If the course without internship, please ignore this item.)

實習定義: 規劃具有學分或時數之必修或選修課程,且安排學生進行實務與理論課程實習,於實習終了取得考核證明繳回學校後,始得獲得學分;或滿足畢業條件者。(一般校內實習請勿勾選此欄位)

Internship: The required or elective courses should include credits and learning hours. Students should participate in the corporative company or institution to practice and learn the real skills. An internship certification must be handed in at the end of internship to get the credits or to fulfil the graduation requirements.

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