

逢甲大學通訊系九十九學年度第五次系課程委員會

會議紀錄

時間:100年3月24日(星期四)下午一時整

地點:電通218室

主席:尤主任正祺

記錄:張雅莉

出席人員:尤正祺、陳志滢、廖時三、辛正和、陳益生、張雅莉、柯蕙蘭

請假人員:

一、 主席報告

二、 討論事項

案由一、「通訊協定與設計」授課大綱審議案。

決 議:照案通過。

案由二、「電信交換工程」授課大綱審議案。

決 議:修訂通過。

案由三、100學年度大學部課程配當表討論案。

決 議:修訂通過。

案由四、100學年度碩士班課程配當表討論案。

決 議:照案通過。

三、 臨時動議

四、 散會

附件一

課程名稱 Course Name	通訊協定與設計	開課班級 Class Name	網路通訊學程 通訊三	授課教師 Teacher	趙啟時
課程類別 Course Property	選修	授課語言 Language of Instruction	中文	開課學期 Semester	102 學年度第 1 學期
授課進度與內容(週次、單元名稱與內容、習作/考試進度、備註) Teaching Schedule & Content (Week, Title and Content of Unit, Assignments/Quizzes, Remarks)					
週次 Week	單元名稱與內容 Title and Content of Unit	習作/考試進度 Assignments/Quizzes		備註(補充閱讀資料) Remarks(Reference Materials)	
1	Overview on Data Communicatons and Networks				
2	Internet	Donot hand-in exercise: NS2 Manipulation		Internet, ISP, POP, NAP, and NSP	
3	Data Transmission			Spectrum, Bandwidth, Data Rate vs. Bandwidth, Analog/Digital Data and Signal, Picture Tube (NTSC/PAL) Screen Scanning and Video Data Transmission, Acoustic Data and Signal, Modem vs. Codec vs. Transceiver, Transmission Impairments, Attenuation, DB.	
4	Data Transmission			Attenuation, Delay Distortion, Inter-Symbol Interference(ISI), Noise, Channel Capacity, Nyquist Bandwidth Theorem, Shannon Capacity Formula, BER vs. Eb/N0.	
5	Transmission Media	Assignment 1		Antenna, Twisted Pair, Coaxial Cable and CATV Networks, UTP vs. STP, Near-End Cross Talk, Optical Fiber: Step-Index Multimode Fiber/Graded Multimode Fiber/Single Mode Fiber, LED vs. ILD, Wavelength Selection and Issues, Optical Fiber Manufacturing Process	
6	Asynchronous Transmission for	Quiz 1			

	Digital Data Transmission		
7	Synchronous Transmission for Digital Data Transmission, DLC Protocol.	Quiz 1 Review Assignemnt 2	Synchronous Transmission for Digital Data Transmission, Type of Errors, Error Detection with Parity Check/CRC, Error Correction with Hamming Code, Data Link Control Protocols, Stop-n-Wait Flow Control, Bit Length of a Link.
8	Mid Term Exam	Mid Term Exam	
9	DLC Protocol	Mid Term Exam Review	Link Utilization of Stop-n-Wait Flow Control, Case Study for Link Utilization of Stop-n-Wait Flow Control on a Fiber Optical Link and a GEO Satellite Link, Sliding Window Flow Control Protocol, Proper Window Size for Sliding Window Flow Control Protocol.
10	DLC Protocol, PPP, HDLC		Error Control with ARQ (Automatic Repeat Request), Stop-n-Wait ARQ, Go-Back-n ARQ, Selective-Reject ARQ, HDLC Protocol, HDLC Frame Format, Flag and Bit Stuffing, A Case Study of HDLC Channel Throughput for a Satellite Link.
11	HDLC Operations, PPP (Point-to-Point Protocol), IP Protocol.	Assignment 3 Project I: NS2 Simulation	IPv4 Header Fields, Fragmentation, Hop Count and TTL.
12	IP Protocol		Implementation of Traceroute with TTL, Checksum Header Option Format; IP Components in Network Module of Operating System; Error/Flow Control in IP; ICMP: Destination Unreachable Message.
13	ICMP Messages; VPN and IPSec; Transport Mode vs. Tunnel Mode	Quiz 2	
14	IPSec, TCP		AH Protocol, ESP Protocol, TCP Introduction, Numbering Systems: Sequence Numbering vs. ACK

			Numbering; TCP Segment Format; Connection Establishment with 3-Way Handshake; Data Transfer: Normal Data/Push Data/Urgent Data.
15	TCP	Project II: NS2 Simulation on Tahoe/Reno	Closing/Half-Close; Connection Reset; 2MSL time; Flow Control; Shrinking the Send Window; Window Shutdown; Silly Window Syndrome; Clark's, Nagle's, Delay ACK; Error Control; ACK Types; Rules of Generating ACKs; Lost ACK Deadlock; Tahoe TCP/Reno TCP.
16	TCP		Congestion Control/Window/Policies: Slow Start, Congestion Avoidance, Congestion Detection. Strong Congestion vs. Weak Congestion; TCP Timers; Options: EOP, NOP, MSS, Window-Scale-Factor.
17	TCP	Quiz 2 Review	Timestamp Option; Measuring RTT; PAWS (Protection against Wrapped Sequence Number), SACK-Permitted and SACK Option; TCP Package for Implementation; TCB (Transmission Control Block).
18		Final Exam.	

課程目標之教學策略與方法

Teaching Strategies and Assessment Methods for Course Objectives

課程目標 Course Objectives	教學策略 Teaching Strategies	評量方法 Assessment Method
讓學生能具備兼具廣度與深度之通訊網路系統、協定、技術專業素養		
讓學生能設計、分析通訊網路系統、協定、技術所需之能力		
讓學生能獲得通訊網路系統、協定、技術之應用與工程相關知識		

附件二

開課系所班級	通訊工程系			授課教師	朱嘯秋
課程類別	選修	授課語言	中	開課學期	三年級下學期
學習評量方式					
(1) Midterm exam : 50%					
(2) In-class lab reports : 0%					
(3) Final exam : 50%					
教科書 (書名、作者、書局、代理商、說明)					
Signaling System No. 7: protocol, architecture, and services					
參考書目 (書名、作者、書局、代理商、說明)					
課程教材 (教師個人網址請列在本校內之網址。)					
授課進度與內容 (週次、單元名稱與內容、習作/考試進度、備註)					
週次	單元名稱與內容			習作/考試進度	備註 (補充閱讀資料)
01	The Evolution of Signaling				
02	Standards				
03	The Role of SS7				
04	SS7 Network Architecture and Protocols Introduction				
05	The Public Switched Telephone Network (PSTN)				
06	Message Transfer Part 2 (MTP2)				
07	Midterm exam				
08	Message Transfer Part 3 (MTP3)				
09	ISDN User Part (ISUP)				
10	Signaling Connection Control Part				

	(SCCP)		
11	Transaction Capabilities Application Part (TCAP)		
12	Intelligent Networks (IN)		
13	Cellular Networks		
14	GSM and ANSI-41 Mobile Application Part (MAP)		
15	SS7/C7 Over IP		
16	SS7 Security and Monitoring		
17	SS7 Testing		
18	Final exam		

課程教材（教師個人網址請列在本校內之網址。）

課程目標之教學策略與評量方法

課程目標	教學策略	評量方法
1.熟悉 SS7 標準與協定	課堂講授	期中考
2.學習 SS7 在電信網路上的功用	課堂講授	期中考
3.學習 MTP2 , MTP3	課堂講授	期中考
4.學習 ISUP , SCCP , TCP 等	課堂講授	期末考
5.學習 SS7 在行動通訊網路上的角色	課堂講授	期末考
6.學習 SS7 與 IP 及通訊安全之關係	課堂講授	期末考

教學模式	教學模式	講授	討論/報告	實驗/實習/ 參訪	遠距/ 網路教學	合計
	學分分配	0	0	0		0
	授課時數分配	0	0	3		3