City University of Hong Kong
Course Syllabus

offered by Department of Electronic Engineering
with effect from Semester B in 2017/2018

Part I Course Overview

Course Title:	Telecommunication Networks
Course Code:	EE5412
Course Duration:	One Semester (13 weeks)
Credit Units:	3
Level:	P5
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course aims to provide students with an understanding of the general fundamental concepts in telecommunication networks and services.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Describe the principles of voice and data network technologies.			✓	
2.	Explain the principles of wireless networks technologies.		✓	✓	✓
3.	Explain the Local area network technologies.			✓	
4.	Explain the Inter-networking technologies.		✓	✓	
5.	Demonstrate the principles of high speed networking technologies.			✓	
		100%			

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4	5	6	
Lecture	General principles of various technologies in telecommunication networking	✓	✓	✓	✓	✓		2 hrs/wk
Tutorial	Key concepts are worked out based on questions and problem solving	✓	✓	✓	✓	✓		1hr/wk
Laboratory	Lab sessions with hands-on experience in internetworking				✓			
Case study	Demonstrate the working principles and apply key concepts of telecommunication networking					✓		

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting	Remarks
	1	2	3	4	5			
Continuous Assessment: 30%								
Test and at least 3 assignments (assignments, laboratory etc.)	✓	✓	✓	✓	✓		30%	
Examination: 70% (duration: 2hrs)								
							100%	

Remark:

To pass the course, students are required to achieve at least 30% in course work and 30% in the examination. Also, 75% laboratory attendance rate must be obtained.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Examination	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal level
2. Coursework	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal level

6. Constructive Alignment with Programme Outcomes

PILO	How the course contribute to the specific PILO(s)
1,2,3	Students are able to understand the general principles in various telecommunication network technologies. Students are required to implement a simple network in the lab.

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

Voice network
Telephone network, teletraffic, link dimensioning, routing

Mobile network
Cellular Network, capacity, media access

Local area network
Network sharing techniques

Inter networking
TCP, IP, congestion control

High speed network [ATM]
Architecture; Services; Protocol; Traffic control; Adaptation Layer

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Kurose and Ross: Computer Networking: A Top-Down Approach, 7th Edition (Pearson, 2017)

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Leon-Garcia and Widjaja: Communication Networks, 2nd Edition, (McGraw-Hill, 2003)
2.	Pahlavan: Principles of Wireless Networks (Prentice Hall, 2002)
3.	Wisniewski: Wireless and Cellular Networks (Prentice Hall, 2005)
4.	Stallings W: ISDN AND Broadband ISDN with Frame Relay and ATM (4th Edition, Prentice-Hall, 1998)

5.	Comer: Computer Networks and Internets (Prentice Hall, 2004)
6.	Girard A: Routing and Dimensioning in Circuit-Switched Networks, (Addison Wesley, 1990)
7.	Maufer: IP Fundamentals (Prentice Hall, 1999)
8.	Tanenbaum A S: Computer Networks, (4th Edition, Prentice-Hall, 2002)