اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Network Fundamentals and Applications
Course Code:	CEN2250
Program:	Computer and Networks Engineering
Department:	Computer Engineering
College:	Computer and Information System
Institution:	Umm Al Qura University

Table of Contents

A. Course Identification

1. Credit hours: 4

2. Course type
a.   University ☐   College ☐   Department ☑   Others ☐
b.   Required ☑   Elective ☐

3. Level/year at which this course is offered: 2nd year – Fifth semester

4. Pre-requisites for this course (if any)**: None**

5. Co-requisites for this course (if any)**: None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	60	٪٠٠١
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	
4	**Others** (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

In this course, student will have overview of computer networking and the Internet. The goal here is to paint a broad picture and set the context for the rest of network terminologies. Students will examine the basic hardware and software components that make up a network basic hardware and software components that make up a network. The course will cover the network's edge and look at the end systems and network applications running in the network. We'll then explore the core of a computer network, examining the links and the switches that transport data, as well as the access networks and physical media that connect end systems to the network core. The course then covers the OSI layering system. It introduces students to the most common network application at the application layer such as HTTP and FTP. It then covers the transport service with focus on TCP and UDP.

2. Course Main Objective

The main objective of this course is to introduce students to the fundamentals of computer networks, how the Internet works, what are the main network applications and what is the OSI layering model.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Describe key elements of the OSI 7-Layer model and TCP/IP model for networking operations and the associated functionalities.	K1
1.2	Explain different types of protocols	K2
1.3		
1...		
2	**Skills :**	
2.1	Use software tools to design and analyze a network	S2
2.2	An ability to design and conduct experiments in Computer Networks.	S2
2.3		
2...		
3	**Values:**	
3.1	Ability to acquire further knowledge with some guidance or support.	V1
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Computer networks and the internet (what is the internet, the network edge, the network core)	9
2	delay and loss, throughput, protocol layers and their service models	9
3	Application layer (principle of network applications, the web and	9
4	FTP, Electronic mail in the Internet, DNS	9
5	Transport Layer (introduction to transport layer services, multiplexing and demultiplexing)	6
6	UDP, TCP	6
7	principle of congestion control	6
8	TCP congestion control	6
Total		60

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Describe key elements of the OSI 7-Layer model and TCP/IP model for networking operations and the associated functionalities.	lecture	Written test
1.2	Explain different types of protocols	lecture	Written test
…			
2.0	**Skills**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	Use software tools to design and analyze a network	lab	Practical test/exam/project
2.2	An ability to design and conduct experiments in Computer Networks.	labs	Practical test/exam/project
…			
3.0	**Values**		
3.1	Ability to acquire further knowledge with some guidance or support.	e-learning	Assignment
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm Exam	7th	30%
2	Labs checkpoints	Throughout semester	10%
3	Practical task	10th	15%
4	Final exam	11th or 12th	45%
5			
6			
7			
8			

Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Arrangements are made for individual student consultations and academic advice for the duration of 6 hours per week. In addition, faculty is available 10 hours per week for student help and consulting.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Computer Networking, a Top-Down Approach; J. F. Kurose, K. W. Ross, 7th edition 2018
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	TRADITIONAL CALSSROOM COMPUTER LAB
Technology Resources (AV, data show, Smart Board, software, etc.)	PROJECTOR, CISCO PACKET TRACER
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	Survey at end of course
Quality of learning resources	Instructor	Survey at end of course
Course learning achievement	Instructor	Course report

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Computer engineering council
Reference No.	
Date	