



# Course Specification

## (Bachelor)

Course Title: **Computer Networking**

Course Code: **APIS2208**

Program: **Diploma in Information Security**

Department: **Diplomas**

College: **Applied College**

Institution: **Umm Al-Qura University**

Version: **1**

Last Revision Date: **14/12/2024**



## Table of Contents

A. General information about the course: .....	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods .....	4
C. Course Content.....	4
D. Students Assessment Activities .....	5
E. Learning Resources and Facilities.....	5
F. Assessment of Course Quality .....	5
G. Specification Approval .....	6



## A. General information about the course:

### 1. Course Identification

1. Credit hours: ( 3 )

#### 2. Course type

- A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
- B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: ( level 2, 1<sup>st</sup> year)

#### 4. Course general 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.

#### 5. Pre-requirements for this course (if any):

Operating Systems

#### 6. Pre-requirements for this course (if any):

#### 7. Course Main Objective(s):

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.

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> <li>Traditional classroom</li> <li>E-learning</li> </ul>		





No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		

### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60

## B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	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.	K1	Course lectures, project	Quizzes, Midterm Exam, Final Exam
1.2	Explain different types of protocols	K1	Course lectures, lab exercises, project	Quizzes, Midterm Exam, Final Exam
2.0	Skills			
2.1	Use software tools to design and analyze a network	S3	Lab coursework Project	Quizzes, Midterm Exam, Final Exam, project
2.2	An ability to design and conduct experiments in Computer Networks.	S4	Lab coursework Project	Quizzes, Midterm Exam, Final Exam, project
3.0	Values, autonomy, and responsibility			



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	To be independent and complete required tasks individually	V2	Project	Project

## 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, delay and loss, throughput, protocol layers and their service models)	12
2.	Application layer (principle of network applications, the web and HTTP, FTP, Electronic mail in the Internet, DNS)	12
3.	Transport Layer (introduction to transport layer services, multiplexing and demultiplexing, UDP, TCP, principle of congestion control, TCP congestion control)	12
4.	Network Layer (Overview)	12
5.	Linked Layer (Overview)	12
		60

## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	1 - 15	10%
2.	Labs	1 - 15	15%
3.	Project	1 - 15	20%
4.	Midterm	1 - 15	20%
5.	Final Exam	Finals Week	35%

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

Essential References	Computer Networking, 8th edition Published by Pearson (July 24, 2020) © 2021 James F. Kurose University of Massachusetts, AmherstKeith Ross
Supportive References	•





<b>Electronic Materials</b>	Umm Al Qura e-learning system containing teaching resources (Slides, assignment papers, etc.)
<b>Other Learning Materials</b>	N/A

## 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture room with: * at least 30 seats * A data show projector connected to a PC preferably with Internet connection * sliding board * PC Lab (at least 30 seats)
<b>Technology equipment</b> (projector, smart board, software)	30 Linux/Windows PCs
<b>Other equipment</b> (depending on the nature of the specialty)	A maintenance lab + A PC lab with various operating systems such as Linux windows etc.

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students' assessment	Peers	Direct
Quality of learning resources	Quality Assurance Committee/ Curriculum Committee	Direct
The extent to which CLOs have been achieved	Instructor	Direct
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)





## G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851141114462/190358
DATE	1446/11/22

