Course Specification

— (Bachelor)

Course Title: Computer Networks	
Course Code: 461CIS-3	
Program: Information Systems	
Department: Information Systems	
College: College of Computer Science and Information Systems	
Institution: Najran University	
Version: *Course Specification Version Number*	
Last Revision Date: 20/03/2022	

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (………)

2. Course type

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

3. Level/year at which this course is offered: (Level 7)

4. Course General Description:

This course provides general overview of Computer Networks and data communication concepts. In addition, it illustrates the network communication models, communication signals, and network classification. Moreover, it provides the students with the skills of Network analysis and design through covering the analysis and design in the following topics performance Management, Transmission Media, Network Devices, Network Addressing and Routing, Network Protocols, Networks scale, and Network security. Also, the course provides practical skills to troubleshoot the network issues.

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

NA

6. Co-requisites for this course (if any):

NA

7. Course Main Objective(s):

Analyze and Design a computer networks based on real world environment and needs.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	0
4.	**Tutorial**	15
5.	**Others (specify)**	0
Total		75

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Explain the key terminologies and concepts of data communications and networking.	**K1**	Lecture	Tests, Quizzes
1.2	Illustrate the services and features of the various network layers.	**K1**	Lecture	Tests, Quizzes
...				
2.0	**Skills**			
2.1	Classify the network protocols, devices, Mediums and types that can be used in a real world network.	S2,S3	Lecture, Lab	Tests, Quizzes, and Lab
2.2	Analyze the Network Performance Management issues.	S1	Lecture, Lab	Tests, Quizzes, and Lab
2.3	Design different types of networks based on IP classes and network topologies.	S2	Lecture, Lab	Tests, Quizzes, and Lab
2.4	Setup different types of network using proper network simulator.	S4	Lecture, Lab	Tests, Quizzes, and Lab

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.5	Troubleshoot the network errors in real world environment.	S4	Lecture, Lab	Tests, Quizzes, and Lab
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Data Communication And Computer Networks	4
2.	Data representation and Physical structures	3
3.	OSI model	6
4	TCP/IP protocol suit	6
5	Logical Addressing	6
6	Network Devices	6
7	Data and Signals	6
8	Network Transmission Media	6
9	Protocols	6
10	Routing and Switching Protocols	6
11	Network Security	6
12	Network Performance	6
13	New Topic in Data Communication And Computer Networks	6
14	Revision	2
Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Lab activity	1-13	10
2.	Quiz	5	10
3.	Assignment	6	10
4.	Mid-term exam	7	20
5.	Final lab exam	14	10

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
6.	Final theory exam	15	40

*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	B.A. Forouzan, Data Communications and Networking, fourth edition, McGraw – Hill.
Supportive References	Tanenbanum A., Computer Networks, Seventh edition., Prentice Hall. Stallings, W., Data and computer communications, Seventh edition, Prentice-Hall.
Electronic Materials	NA
Other Learning Materials	NA

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Class Room Network Laboratory
Technology equipment (projector, smart board, software)	data show, Cisco Packet Tracer Software.
Other equipment (depending on the nature of the specialty)	Switches, Routers, PCs

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect survey
Effectiveness of Students assessment	Students	Indirect survey
Quality of learning resources	Students	Indirect survey
The extent to which CLOs have been achieved	instructor	Direct (CLO software) assessment
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**17th Department Council**
REFERENCE NO.	**14460810-0976-00017**
DATE	**10/02/2025**