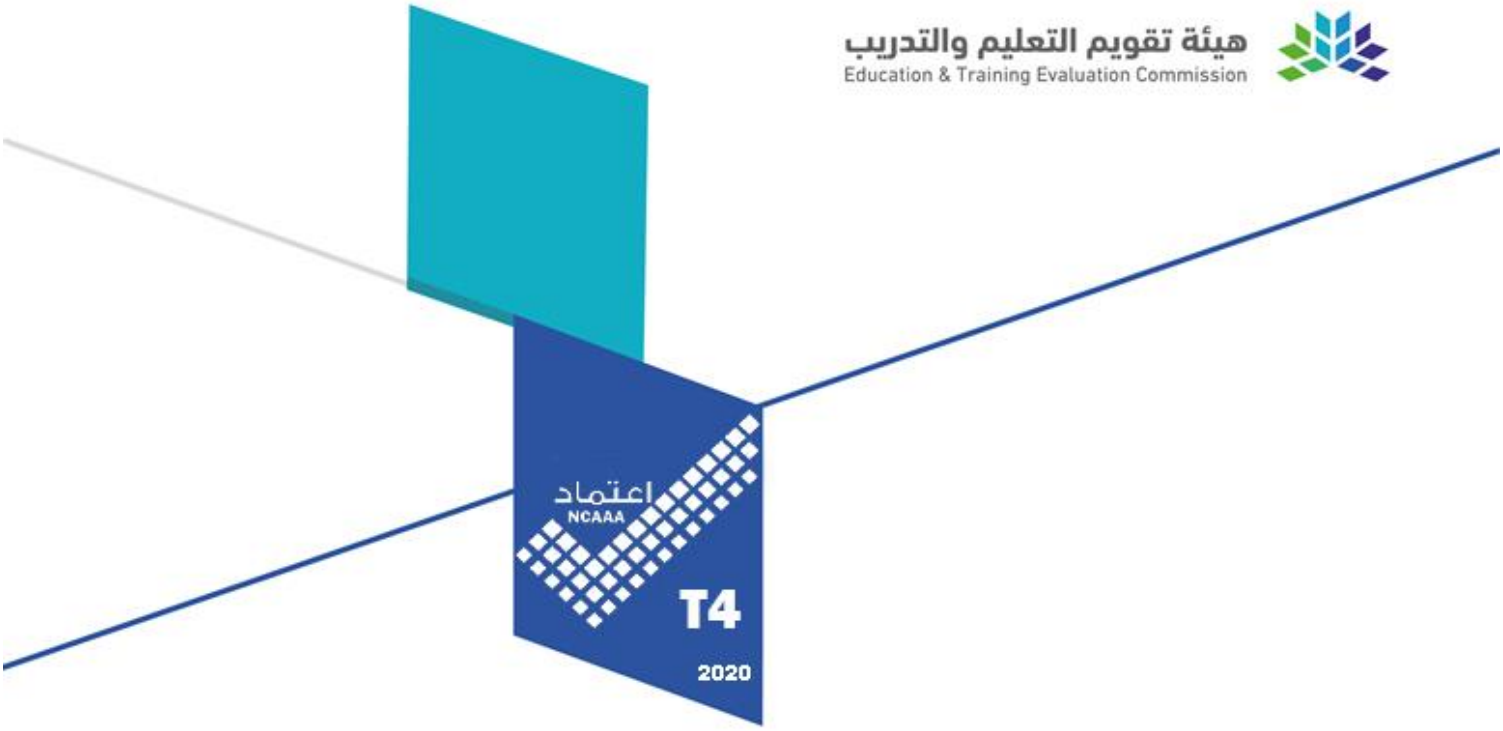
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Data Communication and Computer Networks
Course Code:	461CSS-3
Program:	Bachelor of Science in Computer Science
Department:	Computer Science
College:	College of Computer Science and Information Systems
Institution:	Najran University

Table of Contents

A. Course Identification

1. Credit hours:
2. Course type **a.** University [ ] College [ ] Department [*] Others [ ] **b.** Required [*] Elective [ ]
3. Level/year at which this course is offered: Year 4/Level 11
4. Pre-requisites for this course (if any)**:**
5. Co-requisites for this course (if any)**:** **N/A**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	50	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	20
2	**Laboratory/Studio**	20
3	**Tutorial**	10
4	**Others** (specify) **Study**	
	Total	50

B. Course Objectives and Learning Outcomes

1. Course 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.

2. Course Main Objective

After successful completion of this course students should be able to:

- Define the key terminologies and concepts of data communications and networking
- Describe concepts of physical and data link layer protocols.
- Analyze performance issues in networks
- Explain services and features of the various layers of data networks
- Design different types of networks based on IP classes and different network topologies
- Explain basic protocols of network, transport, and application layer, and how they can be used to assist in network design and implementation
- Setup different types of network using proper network simulator

Describe modern topics in networking.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO_1: Explain the key terminologies and concepts of data communications and networking	K1
1.2	CLO_7: Describe modern topics in networks.	K1
1.3		
1...		
2	**Skills :**	
2.1	CLO_2: Illustrate the services and features of the various network layers.	S2, S3
2.2	CLO_3: Classify the network protocols, devices, Mediums and types that can be used in a real world network	S1
2.3	CLO_4: Analyze the Network Performance Management issues	S2
2.4		S2
2.5	CLO_6: Setup different types of network using proper network simulator	S4
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to computer networks	4
2	OSI model	5
3	TCP/IP protocol suit	3
4	Network Performance Management	5
5	Transmission Media	5
6	Network Devices	5
7	Network Addressing	9
8	Network Layer and Routing	9
9	Transport layer protocols & Application layer protocols	3

10	Modern Topics	2
Total		50

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	CLO_1: Explain the key terminologies and concepts of data communications and networking	TS-1: Relate Course Learning Outcomes (CLOs) to the topics TS-2: Lectures: using PPT presentation and other software to address verbally in front of students the concepts associated with examples with taking help of writing on the board as needed. TS-3: Communication: Given to students the main requirements of the project's reports and presentation TS-4: Encourage students to read different journals, seminars or websites at their leisure time to have better understanding about modern topics in network. TS-5: Recall the topics of last lecture and the critical issues based on different topics, which certainly helps students to recall memory frequently and store that topic in their memory for long term	Assignment, Midterm Exam And Quiz
1.2	CLO_7: Describe modern topics in networks.		
…			
2.0	**Skills**		
2.1	CLO_2: Illustrate the services and features of the various network layers.	TS-1: Relate Course Learning Outcomes (CLOs) to the topics	Assignment, Midterm Exam, Lab Assessment

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods	
2.2	CLO_3: Classify the network protocols, devices, Mediums and types that can be used in a real world network	TS-2: Lectures: using PPT presentation and other software to address verbally in front of students the concepts associated with examples with taking help of writing on the board as needed. TS-3: LAB Work: Every student in the lab is using a separate PC. Practically showing them how to create a small network, configure IP addresses, and implement some network protocols. TS-4: Tutorial: In the tutorials, we ask students to solve some problems in front of each other's and give them some comments and the right answers. TS-5: Communication: Given to students the main requirements of the project's reports and presentation TS-6: Recall the topics of last lecture and the critical issues based on different topics, which certainly helps students to recall memory frequently and store that topic in their memory for long term.		
…	CLO_4: Analyze the Network Performance Management issues CLO_5: Design different types of networks based on IP classes and network topologies.)			
3.0	**Values**			**Competen**
3.1				
3.2				
…				

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Project, presentation and Quiz	4, 6 and 11th	10%
2	Midterm	7th week	20%
4	Lab Activity	1-10 week	10%
5	Lab Assessment 1	9th week	10%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
6	Final Lab Exam	11	10%
7	Final Theory Exam	12 or 13	40%
8	Total		%100

***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 :

- Each faculty member should set up to 10 hours weekly as office hours in their time tables.
- Academic advisors are assigned to advice and support students.
- Instructors set specific office hours for each course he is teaching. The teaching load of staff members are available in the front of their offices.
- Instructors arrange and provide tutorials to students.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	*B.A. Forouzan,* ***Data Communications and Networking,*** *fourth edition, McGraw – Hill*
Essential References Materials	▪ *William Stalling,* **Data and computer communications,** Seventh edition, Prentice Hall,
Electronic Materials	▪ *Tanenbanum A.*, **Computer Networks,** Seventh edition., Prentice Hall *Stallings, W.,* **Data and computer communications,** Seventh edition, Prentice-Hall
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Lecture Rooms with appropriate number of seats, Projector with Screen and a white board or a smart board. • All the computers in all the laboratories should be installed with the latest version of the required software.

Item	Resources
Technology Resources (AV, data show, Smart Board, software, etc.)	• One PC and one projector and data show in the lecture room • Number of PCs according to strength of students in the lab room
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	cisco packet tracer

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Student	Online course survey: By the end of each semester, students give their opinions about many factors in the course. They give feedback about the teaching strategies, assessment methods, textbooks, instructor, etc.
Effectiveness of Teaching	Student	Feedback about Course Learning Outcomes (CLOs): A course survey is distributed to students to take their opinions about the CLOs.
Assessment	Course coordinator	Checks all exams and make sure that they are related to CLOs and appropriate for the course.
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Evaluation Areas/Issues	Evaluators	Evaluation Methods

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 Science Departmental Council
Reference No.	14440203-0185-00002
Date	1st Sep, 2022