هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

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Course Specification

Course Title:	Computer Networks
Course Code:	165 CIS- 3
Program:	**Technical support**
Department:	**Computer Department**
College:	**Applied College**
Institution:	Najran University
Version:	**T -104 2022**
Last Revision Date:	**1-5-2023**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	**3 (2+1) hours**				
2. Course type					
a.	University ☐	College ☐	Department√	Track☐	Others☐
b.	Required √	Elective☐			
3. Level/year at which this course is offered: Level: 3 three / Year: 2nd					
4. Course general Description This course introduces the principles, design, and implementation of computer networks. This course is based on layering architecture. Topics include: Overview of Computer Networks, communication models, TCP/IP Protocol suit, Network Performance Management, Transmission Media, Network Devices, Network Addressing, Network Routing & Switching, Network Protocols, and Concepts of transport and application layers.					
5. Pre-requirements for this course (if any): NO					
6. Co- requirements for this course (if any): No					
7. Course Main Objective(s) •Introduce the main concepts of Data communications and computer networks. •Introduce the network layers' services and protocols, devices, and Mediums. •Design and implement LAN and WAN network and appropriate IPv4 addressing schemes. •Use the appropriate network hardware and software to construct various networks)					

1. Teaching mode **(mark all that apply)**

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	60	100%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. 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	Explain the key terminologies and concepts of data communications and networking	K3	Lecture Discussion	• Exam • Assignments • Quizzes
1.2	Classify the various network layers services and protocols, devices, Mediums and types that can be used in a real-world network	K1	Lecture Discussion	• Exam • Assignments • Quizzes
…				
2.0	Skills			
2.1	Design different types of networks based on IP classes and network topologies	S2	• Lecture • Discussion • Lab work • Brainstorming	• Exam • Assignments • Quizzes t
2.2	Setup different types of network and manage them using proper network simulator and software	S3	• Lecture • Discussion • Lab work • Brainstorming	• Exam • Assignments • Quizzes
2.3	Analyze and Implement different network protocols in TCP/IP	S2	• Lecture • Discussion • Lab work • Brainstorming	• Exam • Assignments • Quizzes

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate the ability to work in group laboratory activities, produce write reports, and delivers presentations.	V2	Discussion • Project	Assignments • Report
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	DATA COMMUNICATIONS	2 (Theory) + 2 (Lab)
2.	Network models • Layered tasks • TCP/IP protocol suite • Addressing Lab: Ethernet cable types and connecting Network devices.	4 (Theory) +2 (Lab)
3	Physical layer and media	2 (Theory) +4 (Lab)
4	• Digital Transmission	2 (Theory) +2 (Lab)
5	Analog Transmission	2 (Theory) +2 (Lab)
6	Bandwidth utilization :multiplexing and Spreading	2 (Theory) +4 (Lab)
7	Switching	4 (Theory) +2 (Lab)
8	Using Telephone and Cable Networks for Data Transmission	2(Theory) +2 (Lab)
9	Transport Layer services and protocols • Application Layer services and paradigms • Lab: Implement HTTP, DNS, and email protocols	4 (Theory) +2 (Lab)
10	Data Link Layer	4 (Theory) +4 (Lab)
11	Data Link Control	2 (Theory) +2 (Lab)
12	Multiple Access	2 (Theory) +2 (Lab)
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	2,4,8	10%
2.	Monthly Exam	8	20%
3.	Practical exam	15	20%
4.	Final exam	17	50%
5.			
...			

*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	Behrouz A. Forouzan, Data communications and networking, 5th Edition, McGraw-Hill, 2013, ISBN:9780-07-337622-6
Supportive References	William Stallings Data and Computer Communications, 10th Edition, Pearson, 2014, ISBN-10: 0-13-350648-7
Electronic Materials	Najran University E.Library • Saudi Digital Library
Other Learning Materials	Manuals of Network simulators and network managements software

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Computer Lab with 30 seats + A Lecture room with 30 seats per section
Technology equipment (projector, smart board, software)	30 PCs, Data show, Cisco Packet Tracer Software, Network Simulators, Software to manage networks
Other equipment (depending on the nature of the specialty)	Networks cabling tools, Switches and routers

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	***Student***	***Questioners***
Effectiveness of students assessment	Staff committee	Cross checking
Quality of learning resources	Faculty Administration	Review and check the results
The extent to which CLOs have been achieved	Quality management in the department	A review of the measurement of learning outcomes
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE