



Course Specification

(Bachelor)

Course Title: **Fundamentals of Data Networks**

Course Code: **IS1330**

Program: **Bachelor in Information Systems**

Department: **Information systems**

College: **College of Computer and Information Sciences**

Institution: **Imam Mohammad Ibn Saud Islamic University**

Version: **2**

Last Revision Date: **21st July 2025**



Approved: 24/08/2025

Table of Contents

A. General information about the course:.....	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods.....	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities.....	6
F. Assessment of Course Quality	7
G. Specification Approval	7





A. General information about the course:

1. Course Identification

1. Credit hours: 4 credit hours (lectures:4)

2. Course type

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

3. Level/year at which this course is offered: third Year

4. Course general Description:

This course introduces students to fundamental computer networking concepts and technologies. Students will explore the layered architecture of networks, studying key protocols from application layer (HTTP, DNS) through transport layer (TCP/UDP), network layer (IP routing and addressing), to data link layer technologies. The course covers essential networking topics including network fundamentals, protocol stacks, IP addressing and subnetting, Software-Defined Networks (SDN), wireless and mobile networks, and security mechanisms in computer networks. Students will analyze how networks support organizational information systems and examine real-world networking scenarios. The course prepares information systems students with the theoretical foundation needed to understand and contribute to network-related decisions in professional environments, emphasizing the role of networks in supporting business operations and digital infrastructure.

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

CS1322 Operating Systems

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

No Co-requisites

7. Course Main Objective(s):

The aim of this course is to introduce students the knowledge of the processes, methods, techniques and tool that organizations use to manage their information systems data networks needs along with different related methods, techniques and tools.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	4 hours/week (Lecture)	100%
2.	E-learning		





No	Mode of Instruction	Contact Hours	Percentage
3.	Hybrid - Traditional classroom - E-learning		
4.	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	60
2.	Laboratory/Studio	
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 PLOs (Performance Level)	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recognize the fundamental definitions and terminology of computer networks	K1(I)	Class Lectures	Quiz, Midterm
1.2	Define the layered architecture of computer networks and its components, protocols and data units	K1(I)	Class Lectures	Assignment, Final exam
1.3	Explain security issues and responsibilities in network design and	K2(P)	Class Lectures	Quiz, Midterm





Code	Course Learning Outcomes	Code of CLOs aligned with PLOs (Performance Level)	Teaching Strategies	Assessment Methods
	implementation with evaluation methods			
2.0	Skills			
2.1	Apply networking concepts to analyze network performance and troubleshoot common network issues	S4(I)	Class Lectures, Case Studies	Quiz, Midterm
2.2	Design basic network architectures and evaluate appropriate networking solutions for organizational needs	S2(I)	Class Lectures, Problem-solving	Project, Final exam
2.3	Analyze modern networking technologies including SDN, wireless networks, and security mechanisms in computer networks	S4(I)	Class Lectures, Discussion	Assignment, Final Exam
3.0	Values, autonomy, and responsibility			
3.1	Function effectively in teams to accomplish networking projects and technical goals	V1(I)	Group Discussion, Collaborative Learning	Project
3.2	Demonstrate continuous professional development in networking technologies while recognizing ethical, legal, and social responsibilities	V2(P)	Presentations, Report Writing	Project

C. Course Content

No	List of Topics	Contact Hours
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1.	Introduction to Computer Network Fundamentals	6
2.	Network layered Architecture	6
3.	Application layer	6
4.	Transport layer	6
5.	Network Layer	6
6.	Data Link Layer	6
7.	IP addressing and classes	6
8.	Software-Defined networks	6
9.	Wireless and Mobile Networks	6
10.	Security in Computer Networks	6
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	4,11	10%
2.	Midterm Exam	8	20%
3.	Assignment	7	10%
4.	Group Project	15	20%
5.	Final Exam	16	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	<i>Computer Networking: A Top-Down Approach 8th edition Jim Kurose, Keith Ross Pearson, 2020.</i>
Supportive References	N/A
Electronic Materials	N/A
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. At least 30 seats 2. A projector connected to a PC preferably with Internet connection 3. Sliding board





Items	Resources
Technology equipment (projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect using course evaluation survey
Effectiveness of Students assessment	Faculty members	Direct method using TOS file
Quality of learning resources	Students and Faculty	Indirect using course evaluation survey and faculty survey
The extent to which CLOs have been achieved	Faculty members	Direct method using TOS file
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	IS CURRICULUM APPROVAL & DEVELOPMENT COMMITTEE IS QAC / / IS COUNCIL
REFERENCE NO.	
DATE	

