Course Description Form

This course description has the characteristics of the course and the learning outcomes that the student is expected to achieve, which requires inspiring evidence of whether it can make the most of the available learning opportunities. The alternative is necessary and describes the alternative.

Educational Institution	Shatt Al-Arab University / College of Computer Science
Scientific Department / Center	Computer Science Department
Course Name	Computer Network
Available forms of attendance	Weekly / Theoretical
For the semester / year	Second semester 2024-2025
Number of study hours (Total)	28 hour theoretical
Date of preparation of this description	2025\3\5
Course Description	This course provides an overview of the basic concepts of communications and computer networks, and their basics, benefits, forms, architecture, layers, functions, and possible services, in addition to how to network them.

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A- Cognitive objectives

1- Understanding the basic principles of networking:
The student will gain knowledge of network components, network types (LAN, WAN, MAN), and network topology.
2- Explaining the OSI and TCP/IP layer models:
The student will be able to explain the functions of each layer of the two models and their role in the communication process.
3- Identifying the different protocols used in networks:
The student will learn about protocols such as IP, TCP, UDP, HTTP, DNS, and others, and the functions of each.
4- Analyzing how data travels within networks:
The student will understand the concepts of routing, packet switching, IP addressing, and how data is transmitted between devices.

B-Skill objectives of the course

1. Use network analysis tools such as Wireshark to trace and analyze data traffic.
2. Configure and adjust network settings such as IP addressing, DHCP, and DNS in real-world environments.
3. Design and implement a local area network (LAN) using simulation software such as Cisco Packet Tracer.
4. Troubleshoot in a real-world or simulated network environment, using specific methodologies.

Assessment Methods

1- Theoretical Exams
2- Practical Exercises and Reports
3- Assignments and Quizzes

C- Emotional and value goals

1- Commitment to Network Ethics:
The student is committed to using networking technologies legally and ethically, and demonstrates respect for privacy and cybersecurity laws.
2- Interest in Information and Network Security:
The student demonstrates an increased awareness of the importance of protecting data and networks, and develops a sense of responsibility for maintaining the security of systems.

Teaching and learning methods
Evaluation methods

Syllabus

Week	Hours	Learning Outcomes	Unit/Subject Name	Teaching Method	Evaluation Method
First	**3**	General concepts of communication	Communications between devices, components of the communications system and protocols	theoretical	General questions and discussion
Second	**3**	General concepts about networks	Definition of networks, types of connections, protocols and standards	theoretical	General questions and discussion
Third	**3**	Network Models	General study on network models (OSI and Internet models)	theoretical	General questions and discussion
Fourth	**3**	Learn more about network models.	A detailed study of the layers of network models	theoretical	General questions and discussion
Fifth	**3**	Physical layer study	Study of digital and analog data and signals	theoretical	General questions and discussion
Sixth	**3**	Learn more about the physical layer	Signals and communications, digital and analog transmission and limiters	theoretical	General questions and discussion
Seventh	**3**	Data Link Layer Study	Study the tasks and work of the data link layer	theoretical	General questions and discussion
Eighth	**3**	Learn more about the data link layer	Framing and error control	theoretical	General questions and discussion and monthly exam
Ninth	**3**	Network layer study	Study the tasks and work of the network layer	theoretical	General questions and discussion
Tenth	**3**	Learn more about the network layer	Addressing, Networking, Routing Concepts	theoretical	General questions and discussion

Eleventh	**3**	Learn more about the network layer	Routing, Routing Table Components, Routing Algorithms	theoretical	General questions and discussion
Twelfth	**3**	Transport layer study	Study the tasks and work of the transport layer	theoretical	General questions and discussion
Thirteenth	**3**	Learn more about the transport layer	Transport Layer Protocols, Congestion Control and Quality of Service	theoretical	General questions and discussion
Fourteenth	**3**	Identify cables and their types	Study the types of cables and compare them and their uses	theoretical	General questions and discussion
Fifteenth	**3**	Learn about devices and how to connect to the network	Networking using cables, routers and switches	theoretical	General questions and discussion