

Jadara University		جامعة جدارا
Faculty of Information Technology		كلية تكنولوجيا المعلومات

COURSE DESCRIPTIONS

Faculty	Information Technology				
Department	Computer Networks and Cybersecurity			NQF level	7
Course Title	Computer Networks I	Code	509251	Prerequisite	503473
Credit Hours	3	Theory	3	Practical	0
Course Leader	Dr. Firas Zawaideh	E-mail	F.Zawaideh@jadara.edu.jo		
Lecturers	-----	emails	-----		
Lecture time	Sun. Tue [13:00_14:30]	Classroom	D003		
Semester	Fall 2024-2025	Production	2015	Updated	2023

Short Description

This course provides the student with the detailed operation and configuration of network data communication switches. Topics include the use of switches in a modern digital network, Introduction to Switched Networks, Switch components, Hardware Addressing (MAC), Layer-2 Switching and Forwarding Methods, MAC Table Architecture, Collision vs. Broadcast Domain, Redundancy, Switching Loops, Loop Avoidance protocol STP, Basic Switching Concepts and Configuration, VLANs, ARP, The ARP Table, IPv4 and IPv6 Addressing, The IPv4 Header, NAT server, and DHCP.

Course Objectives

To let students, acquire knowledge and understand about Switched Networks, students should be able to perform tasks related to switching concepts and configuration.

Learning Outcomes

A. Knowledge - Theoretical Understanding

a1. **Illustrate** concepts and role of the Switched Computer Networks. (K1)

B. Knowledge - Practical Application

a2. **Apply** layer 2 switching and VLAN protocols and its implementation. (K4)

C. Skills - Generic Problem Solving and Analytical Skills

b1. **Analyze** the functionality of computer networks. (S1)

D. Skills - Communication, ICT, and Numeracy

E. Competence: Autonomy, Responsibility, and Context

Teaching and Learning Methods

Lectures

Assessment Methods

- Assessment of concepts understanding, analysis of concepts, and ability to compare and contrast.
- Assessment of skills (Use of algorithms, testing, and analysis)
- Midterm exam, Final exam, Quizzes, and class Assignments.

Course Contents					
Week	Hours	CLOs	Topics	Teaching & Learning Methods	Assessment Methods
1	3	a1	Syllabus, Course Schedule; Ch1: Overview of Computer Networks Introduction to Networking (OSI Model, TCP/IP Model) Network Architectures, Network devices and Components.	Face to Face	
2	3	a1, a2	Ch2. Switching Concepts: Frame Forwarding, Collision and Broadcast Domains	Face to Face	Quiz
3 & 4	6	a1, a2, b1	Ch3. VLANs: Overview of VLANs, VLANs in a Multi-Switched Environment, VLAN Configuration, VLAN Trunks, Dynamic Trunking Protocol	Face to Face	Quiz
5 -7	9	a1, a2, b1	Ch5. STP Concepts: LAN Switching Technologies, Loops and Purpose of STP (Spanning Tree Protocol, Ports Statuses, Switches and Redundancy, and Loop Identification, STP Operations	Face to Face	Quiz
8	3	a1, a2, b1	Ch6. EtherChannel: implement EtherChannel on switched links, EtherChannel technology	Face to Face	Assignment
MIDTERM EXAM					
9 & 10	6	a1, b1	Ch7-8. DHCPv4 & DHCPv6: DHCPv4-6 Concepts and Server	Face to Face	Quiz
11 & 12	6	a1, b1	Ch13. NAT for IPv4: Logical Addressing, Network Address Translation, Address Translation Types	Face to Face	Assignment Quiz
13 & 14	6	a1, b1	Ch14. IPv6: IPv6 Addressing, IPv6 Features, IPv6 Address Format, Types of IPv6 Addresses	Face to Face	Assignment
Final EXAM					

Infrastructure	
Textbook	Switching, Routing, and Wireless Essentials Companion Guide (CCNAv7). 2020 Cisco Press, Hoboken, New Jersey.
References	1. CCNA Study Guide v2.71 – 2014 by Aaron Balchunas
Required reading	
Electronic materials	
Other	

Course Assessment Plan							
Assessment Method		Grade	CLOs				
			a1	a2	b1		
Midterm		30	8	15	7		
Coursework		20	5	10	5		
Final Exam		50	15	20	15		
Coursework assessment methods	Assignments			2	2		
	Case study						
	Discussion and interaction						
	Group work activities				3		
	Lab tests and assignments						
	Presentations			3			
	Quizzes			5	5		
Total		100	28	45	27		

Plagiarism
<p>Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code).</p> <p>Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.</p>