زانكۆی پۆلیتەکنیکی هەولێر
EPU ERBIL POLYTECHNIC UNIVERSITY
1996

Kurdistan Region Government
Ministry of Higher Education
and Scientific Research
Erbil Polytechnic University

Module (Network) Catalogue

2023-2024

College/ Institute	Khabat Technical Institute	
Department	Information technology	
Module Name	Network 2	
Module Code		
Degree	Technical Diploma ✖ Bachelor ▫ High Diploma ☐ Master ☐ PhD ☐	
Semester	Third Semester	
Qualification	Master's degree in computer science	
Scientific Title	Assistant Lecturer	
ECTS (Credits)	6	
Module type	Prerequisite ☐ Core ✖ Assist. ☐	
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(91)Total hrs Workload
Weekly hours (Practical)	(2)hr Class	(71)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Didar Rashad	
E-Mail & Mobile NO.	didar.qadr@epu.edu.iq	
Lecturer (Practical)	Aram Jawdat Agha	
E-Mail & Mobile NO.	aram.agha@epu.edu.iq	
Websites		

Course Book

Course Description	This course builds on your existing user-level knowledge and experience with personal computer operating systems and networks to present the fundamental skills and concepts that you will need to use on the job in any type of networking career. This course can benefit you in two ways. It can assist you if you are preparing to take the General Network+ examination. Also, if your job duties include network troubleshooting, installation, or maintenance, or if you are preparing for any type of network-related career, it provides the background knowledge and skills you will require to be successful.			
Course objectives	In this course, you will describe the major networking technologies and systems of networks, and be able to configure, manage, and troubleshoot networks. You will: • Identify basic network theory concepts and major network communications methods. • Describe bounded network media. • Identify unbounded network media. • Identify the major types of network implementations. • Identify TCP/IP addressing and data delivery methods.			
Student's obligation	The Students should be attendant in class at less than 1:30 hours during lecturing and to pass this course should be fulfilled the following requirements: 1. The student has to submit almost all assignments, essays and reports and also. 2. The student must be passing the exams and quizzes which have been done during study year. 3. Students attending classes regularly. 4. Group work. 5.Doing assignments. 6.Class activities.			
Required Learning Materials	The ways that we are using in our teaching for this course are: 1. Data show. 2. White Board. 3. Word Documents. 4. Notebook. 5. Group activity 6. Computer Lab 7. Cisco Packet Tracer (App).			

	Task	Weight (Marks)	Due Week	Relevant Learning Outcome
Evaluation	Paper Review	0		
	Assignments — Homework	5		
	Assignments — Class Activity	2		
	Assignments — Report	5		
	Assignments — Seminar	5		
	Assignments — Essay	0		
	Assignments — Project	0		
	Quiz	8		

	Lab.	10		
	Midterm Exam	25		
	Final Exam	40		
	Total	100		

Specific learning outcome:	Students should Be able to configure and support PC, laptop, mobile (smartphone / tablet), and print devices Know basic network terminology and functions (such as Ethernet, TCP/IP, switches, routers) Configure and manage users, groups, and shared resources in a simple SOHO network Understand the use of basic access control measures, such as authentication, security policy
Course References:	1. Computer Networking: A Top-Down Approach 2. Computer Networks Tanenbaum 5th edition Pearson Education India 3. CompTIA Network+ Certification All-in-One Exam Guide Mike Meyers7th edition McGraw Hill 4. http://www.4shared 5. **www.google.com** 6. **www.youtube.com**

Course topics (Theory)	**Week**	**Learning Outcome**
1. Overview of Network Components. 2. Network Types. 3. Network Topology	1,	1. Network Types. 2. Network Topology
Physical Address: Media Access Control (MAC) address. Logical Address: Internet Protocols (IP) address.	2,3	IP, MAC
• IPv4 Review. • IPv6. •	4,5	Ipv4,ipv6,DNS,DHCP
• IP Service: DNS, DHCP & Default gateway.	6,7,	
Subnetting	8,9	Subnetting
-Variable Length Subnet Masks (VLSMs).	10	Variable Length
-Introduction to OSI Model. -Flow Control and Windowing. -Data Encapsulation. -TCP/IP Model OSI Layers In Details.	11,12	Classes and Objects
OSI Layers In Details.	12	OSI Layers I

Cisco IOS.	13	Cisco IOS
Network Cables	14	Network cables
Cable Configuring. Ethernet Cabling.	15	Cable Configuring

Practical Topics	Week	Learning Outcome
1. Overview of Network Components. 2. Network Types. 3. Network Topology	1	1. Overview of Network Components. 2. Network Types. 3. Network Topology
1. Overview of Cisco Packet tracer. 2. Designing LANs. 3. Connecting more than one LAN to create WAN.	2,3	1. Designing and creating small network.
2. Type of cables and how they working. 3. OSI model and TCP/IP	4	1. How cables working. 2. How data transferring over the host devices.
1. IPv4. 2. Subnetting	5,6	1. IPv4 classes 2. Subnetting.
1. Designing and creating network with specific range of IPv4 using subnetting.	7	1. distribution IPv4 and how subnetting.
1. Switching. 2. Routing.	8	1. How data will transfer over the switch. 2. How data will transfer over the router.
1. DNS Server.	9	1. What is DNS server and how it's working.
2. Sharing files over the network.	10	1. How can share files over the network.
1. Windows Server.	11	1. Introduce windows server and how install windows server.
1. Installing server and sharing services over the network.	12	1. How can install server and access to its services.
1. Installing Firewall over the network.	13	1. What is Firewall and how it's working.
2. Review.	14,15	

| Questions Example Design |
| a. |

Q1/   **Multiple Choice Questions**   (50 Marks)

1. Which class of IP address has the most host addresses available by default?

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a . A   b. B   c. C   d. A and B

2. How long is an IPv6 address?
   a. 32 bits   b. 128 bytes   c. 32 bytes   c. 128 bits

3. Which one of below is a valid IP Address?
   a. 0.1.1.99 /24   b. 192.168.0.1 /24   c. 192.168.0.1 /33   d. 257.0.0.1 /24

4. IANA stands for
   a. Internet Assigned Numbers Authority   b. Internal Assigned Numbers Authority   c. Internet Associative Numbers Authoritative d. Internal Associative Numbers Authority

5. MAC stands for
   A. Media Area Control   B . Memory Access Control
   c. Memory Area Control   d . Media Access Control

6. On wireless networks _____ filtering is the security measure.
   a. OUI   b. MAC   c. IP   d. NIC

7. If the same IP address assigned to two or more systems on the network, resulting in an IP address
   a. Conflict   b. connects   c. Burned in Address   d. none

8. fe80::2577:e245:785f:39ac example of
   a. IP address   b. subnet mask   c. IP v6 address   d. mac address

9. IP Address is divided into
   a. Network Portion & Host Portion   b. IP v4 & IP v6   c. subnet mask & default getaway   d. Network Address & Broadcast Address

10. WAN interconnects network components that are_____ separated.
    b. topologically   b. geographically   c. technically   d. none

/   **Mark the following true or false.**

(20 Marks)

1. Mac address It used to find a host in a network.
2. Subnet mask It used to locate the network.

3. Class C IP address Range is from   128.0.0.0   to 191.255.255.255.
4. Broadcast Address IP Address with all bits as ONES in the host portion.

APIPA IP address range is 169.254.0.1 through 169.254.255.254.

/   **Complete the following table.**
(30Marks)

Class	Format	Default SM	CIDR
C	N.N.N.H		
		255.0.0.0	/8
	N.N.H.H	255.255.0.0	