

Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Information Systems Department	QF01/0408-3.0E
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Faculty	Faculty of Science and Information Technology	Department	Computer Science/ Computer Networks
Course Number	0106241	Course Title	Network(1)
Number Of Credit Hours	3	Pre-Requisite/Co-Requisite	0107101

Brief Course Description

Introduction to computer networks (goals and applications), Networks Classification, Multiplexing, Network Performance Delay and Loss in Packet-Switched Networks, Application Layer, Principles of Application-Layer Protocols, The World Wide Web: HTTP, Internet's Directory Service: DNS, transport layer services, multiplexing and Demultiplexing application, UDP,TCP, Principles of Congestion Control . Network layer, routing principles, IP, IPv4, ICMP. Data link layer services, error detection and correction techniques, sliding window protocols, Multiple Access protocol and LANs, Link layer addressing and address resolution protocol ARP and local area network.

Course Goals and Learning Outcomes	
Goal 1	Understand the concepts Networking and concepts
Learning Outcomes	1.1 Understanding the basic concepts and techniques of Network. 1.2 Learning the types of networks
Goal 2	Understand the concept of OSI Model and its layers
Learning Outcomes	2.1 Learning the Application and Presentation Layers. 2.2 Learning the Session and Transport Layers 2.3 Learning the Network, Data link and Physical Layers.
Goal 3	Understanding the basic ideas of Network Transmission and Network Media
Learning Outcomes	3.1 Learning the Analog and Digital Signaling , Data Modulation 3.2 Learning the Simplex, Half-Duplex, and Duplex Multiplexing 3.3 Learning the Relationships Between Nodes
Goal 4	Understand the concept of TCP/IP Protocols
Learning Outcomes	4.1 Learning Characteristics of TCP/IP (Transmission Control Protocol/Internet Protocol) 4.2 Learning the TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).
Goal 5	Understand the Ethernet, Network Hardware and Switching
Learning Outcomes	5.1 Learning the Ethernet Standards for Copper Cable 5.2 .Learning the NICs (Network Interface Cards) 5.3 Learning the Switching Methods 5.4 Learning the Router Characteristics and Functions
Textbook	Network+ Guide to Networks 8th Edition Mar 1, 2018 by Jill West (Author), Tamara Dean (Author), Jean Andrews (Author)

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Supplementary References	<ol style="list-style-type: none"> 1. Computer Networks 5th By Andrew S. Tanenbaum (International Economy Edition) January 9, 2010 Pearson Education, Inc., Prentice-Hall-Series, 2010. 2. Distributed Computer and Communication Networks, 18th International Conference, DCCN 2015, Moscow, Russia, October 19-22, 2015, Revised Selected Papers, Editors: Vishnevskiy, Vladimir M., Kozyrev, Dmitry V. (Eds.)
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Course Timeline

Week	Number of Hours	Course Topics	Pages (Textbook)	Notes
01	1 1 1	An Introduction to Networking Why Use Networks <ul style="list-style-type: none"> – Types of Networks – Peer-to-Peer Networks – Client/Server Networks – LANs, MANs, and WANs 	1-37	
02	1 1 1	Networking Standards and the OSI Model. <ul style="list-style-type: none"> – The OSI Model. – Application Layer – Presentation Layer – Session Layer – Transport Layer – Network Layer – Data Link Layer – Physical Layer . . . 	39-52	
03	1 1 1	Transmission Basics and Networking Media <ul style="list-style-type: none"> – Analog and Digital Signaling , Data Modulation – Simplex, Half-Duplex, and Duplex – Multiplexing – Relationships Between Nodes 	73-87	
04	1 1 1	Introduction to TCP/IP Protocols <ul style="list-style-type: none"> – Characteristics of TCP/IP (Transmission Control Protocol/Internet Protocol) – The TCP/IP Core – TCP (Transmission Control Protocol) – UDP (User Datagram Protocol) 	135-145	
05	1 1 1	<ul style="list-style-type: none"> – IP (Internet Protocol) – ICMP (Internet Control Message Protocol) – IGMP (Internet Group Management Protocol) 	145-150	

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		– ARP (Address Resolution Protocol) First Exam 20%		
06	1 1 1	– Application Layer Protocols – FTP (File Transfer Protocol) – TFTP (Trivial File Transfer Protocol) – NTP (Network Time Protocol) – NNTP (Network News Transfer Protocol) PING (Packet Internet Groper)	168-173	
07	1 1 1	Topologies and Ethernet Standards – Simple Physical – Bus , Ring and Star Logical Topologies Hybrid Physical Topologies – Star-Wired Ring – Star-Wired Bus	193-200	
08	1 1 1	– Backbone Networks – Serial Backbone – Distributed Backbone – Collapsed Backbone – Parallel Backbone. .	200-210	
09	1 1 1	– Switching – Circuit Switching – Message Switching – Packet – MPLS (Multiprotocol Label Switching)	210-215	
10	1 1 1	Review of Previous Chapters Second Exam: 20%		
11	1 1 1	Ethernet – CSMA/CD (Carrier Sense Multiple Access with Collision Detection) – Ethernet Standards for Copper Cable – Ethernet Standards for Fiber-Optic Cable – 10-Gigabit Fiber-Optic Standards .	215-222	
12	1 1 1	Network Hardware – NICs (Network Interface Cards) – Types of NICs – Installing NICs. Choosing the Right NIC .	237-255	
13	1 1 1	Switches – Installing a Switch – Switching Methods	280-283 286-295	

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14	1 1 1	Routers. – Router Characteristics and Functions – Routing Protocols	271-280	
15	1 1 1	Review of Previous Chapters – Discussions of Reports and Home Works:10%		
16	1 1 1	Final Exam 50%		

Theoretical Course Evaluation Methods and Weight	Participation = 10% First Exam 20% Second Exam 20% Final Exam 50%	Practical (Clinical) Course Evaluation Methods	Semester Students' Work = 50% (Reports, Research, Quizzes, Etc.) Final Exam = 50%
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Approved by Head of Department		Date of Approval	
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Extra information (to be updated every semester by corresponding faculty member)

Name of Teacher		Office Number	
Phone Number (Extension)		Email	<u>_____@zuj.edu.jo</u>
Office Hours			