

<b>Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Science Department</b>	<b>QF01/0408-3.0E</b>
---	-----------------------

Faculty	Faculty of Science and Information Technology	Department	Computer Science
Course number	0102342	Course title	Data Communication and Security
Number of credit hours	3	Pre-requisite/co-requisite	Network (1)

### Brief course description

This module is the second level module of curricula related to the computer networks field. It provides in depth coverage of some basic topics such as routing algorithms, addressing, and networks security.

Course goals and learning outcomes	
<b>Goal 1</b>	The ability to understand and design computer networks and related matters
Learning outcomes	1.1 To understand different types of computer networks 1.2 Designing a computer network 1.3 Understanding Network Security Principles
<b>Goal 2</b>	Understand the concepts of Data transmission
Learning outcomes	2.1 Transmission Signals, Signal Types, Data Transmission Impairments, and Data Channel Characteristics 2.2 Data transmission channels 2.3 Line coding schemes and block coding
<b>Goal 3</b>	Understand the concepts of Data Link services
Learning outcomes	3.1 Shared medium and multiple access protocols 3.2 Error detection such as internet checksum algorithm and cyclic redundancy check 3.3 LAN protocols
<b>Goal 4</b>	Network protocols
Learning outcomes	4.1 IPV4, IPV6, ICMP, IGMP, ARP, RARP, ICMPV6 4.2 IPV4 addressing, Classes, Subnetting 4.3 Public and private addresses , NAT router, NAT table, DHCP, and IPV6 addresses 4.4 Routing Protocols and Routing Table 4.5 RIP, OSPF, and BGP 4.6 Mobile Routing and Home and Foreign Agent

Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Science Department	QF01/0408-3.0E
---	----------------

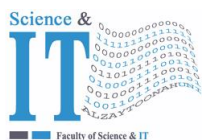
<b>Textbook</b>	1.- Computer Networks & Communications ,Tamimi A., AbdelFatah and Khalifeh M., Jamal
<b>Supplementary references</b>	1.- Computer Networking: A Top-Down Approach (6th Edition) by James F. Kurose and Keith W. Ross (2013) 2.- Computer networks : a systems approach (4th ed) by Larry L. Peterson & Bruce S. Davi (2007)

Course timeline				
Week	Number of hours	Course topics	Pages (textbook)	Notes
01	1 1 1	<b>DATA TRANSMISSION</b> Transmission Signals SIGNAL TYPES DATA TRANSMISSION Transmission Impairments Data Channel Characteristics	77-90	Chapter 4
02	1 1 1	<b>DATA TRANSMISSION</b> Digital transmission of digital data analog transmission of digital signal Digital transmission of analog data Analog transmission of analog data	90-111	Chapter 4
03	1 1 1	<b>DATA LINK SERVICES AND LAN PROTOCOLS</b> The Services Provided by the Data Link Layer Framing Shared medium and multiple access problem Reliable Transmission and Flow Control Error detection	157-178	Chapter 6
04	1 1 1	<b>WAN INTERNETWORKING TECHNOLOGY</b> Multiplexing Carrier Systems Synchronous Optical WAN Technology Integrated Services Digital Network	275-297	Chapter 9
05	1 1 1	<b>WAN INTERNETWORKING TECHNOLOGY</b> Digital Subscriber Line (DSL) Asynchronous Transfer Mode (ATM) Broadband Wireless Access Technology (BWA)	297-310	Chapter 9
06	1 1 1	<b>Review of Previous Chapters</b> <b>First exam 20%</b>		

Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Science Department	QF01/0408-3.0E
---	----------------

07	1 1 1	<b>IP PROTOCOLS</b> TCP/IP Suite Protocol The Network layer Protocols Internet Protocol (IP)	323-333	Chapter 10
08	1 1 1	<b>IP PROTOCOLS</b> Internet Control Message Protocol Internet Group Management Protocol (IGMP) Address Resolution Protocol Reverse Address Resolution Protocol (RARP)	334-346	Chapter 10
09	1 1 1	<b>NETWORK LAYER ADDRESSING</b> IP Addressing Subnet and Subnet Mask Public and Private Addresses	353-369	Chapter 11
10	1 1 1	<b>NETWORK LAYER ADDRESSING</b> Network Address Translation (NAT) IP v6 Addresses Managing the Address Space	370-379	Chapter 11
11	1 1 1	<b>Review of Previous Chapters</b> <b>Second Exam: 20%</b>		
12	1 1 1	<b>Routing</b> Routing Principles Routing Algorithms and Routing Protocols Routing protocols Mobile Routing	389-417	Chapter 12
13	1 1 1	<b>THE TRANSPORT LAYER PROTOCOLS</b> The Transport Layer services Application multiplexing and demultiplexing The Transport Control Protocol (TCP)	425-436	Chapter 13
14	1 1 1	<b>THE TRANSPORT LAYER PROTOCOLS</b> User Datagram Protocol Choosing Between UDP and TCP Transport Protocols for Mobility Communicating Processes Using Sockets	437-441	Chapter 13
15	1 1 1	<b>Review of Previous Chapters</b> <b>Discussions of Reports and Home Works:10%</b>		
16	1 1 1	<b>Final Exam</b>		

<b>Theoretical course evaluation methods and weight</b>	Participation = 10% First exam 20% Second exam 20% Final exam 50%	<b>Practical (clinical) course evaluation methods</b>	Semester students' work = 50% (Reports, research, quizzes, etc.)
---	--	---	---



جامعة الزيتونة الأردنية  
Al-Zaytoonah University of Jordan  
كلية العلوم وتكنولوجيا المعلومات  
Faculty of Science and Information  
Technology



"عراقة وجودة"  
"Tradition and Quality"

<b>Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Science Department</b>	<b>QF01/0408-3.0E</b>
---	-----------------------

			Final exam = 50%
--	--	--	------------------

<b>Approved by head of department</b>		<b>Date of approval</b>	
---------------------------------------	--	-------------------------	--

Extra information (to be updated every semester by corresponding faculty member)

<b>Name of teacher</b>	Dr. Khalid Abdulfattah Farhan	Office Number	
Phone number (extension)	386	Email	<a href="mailto:_____@zug.edu.jo">_____@zug.edu.jo</a>
Office hours			