Hashemite University
College of Engineering
Department of Computer Engineering
Computer Networks 110408450 (Spring Semester 2020/2021) – Online Format
(3 Credit Hours/Dept. Compulsory)

Instructor

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Office Hours:	Mon., Wed. : 12:30 – 13:00

Grading info

Pop-Quizzes & Others	20%
Mid. Exam	40%
Final Exam	40%

Class Info

Days	Mon. / Wed.
Time	11:00 - 12:30
Location	Online Course

Course

Course Number:	110408450
Prerequisite:	Fundamentals of Telecommunication Systems (110408303)
Textbook:	**"Data Communication s and Networking",** Behrouz Forouzan, 5th edition, McGraw-Hill, 2012.
Course Description:	Computer Networks is an integral part of telecommunication and has played a significant role in the Information technology revolution. In this course, we will review the TCP/IP protocol suite, and then introduce the top four layers (data-link, network, transport, application) with an emphasis on protocols, architectures, and implementation issues. Mainly, we want to understand the layering concept in computer networks, understand functions and protocols within a layer, and how do these layers fit together to finally understand how the Internet works. .
Specific Outcomes of Instruction (Course Learning Outcomes)	1. **Understand** the computer networks' switching topologies. (a, e, k) 2. **Review** the protocol layering concepts, principles and architectures.(k) 3. **Discover** the steps that a message goes through in its journey from a source to a given destination.(a, e) 4. **Breakdown** the services provided by the different protocols that run in the different layers in the TCP/IP network model. (k) 5. **Acquire** the knowledge necessary to **evaluate** the computer networks performance. (a, e) 6. **Understand** the addressing schemes deployed in the different network layers. (c, k) 7. **Acquire** the necessary knowledge and techniques required to **Design** computer networks that matches the engineering standards. (c, k)
Important material	- Lecture notes - Textbook - References to be reviewed: • Introduction to Linear Algebra, 5th Edition, Gilbert Strang, 2016

References:

- **Data and Computer Communications, William Stallings, 9th edition, Prentice Hall, 2010.**

Major Topics Covered and Schedule in Weeks*:

Topic	# Weeks	# Contact hours*
Switching	1	3
Introduction to Data-Link Layer	2	3
Error Detection and Correction	3	3
Wired LANs: Ethernet	4	3

Connecting Devices and Virtual LANs	5	3
Introduction to Network Layer	6 & 7 & 8	9
The Midterm Exam		
Network Layer Protocols	9 & 10 & 11	9
Unicast Routing	12	3
Introduction to Transport Layer	13	3
Total	**14**	**42 (Including Exams)**

Course Policy

- The course will follow selected subjects as listed on the course schedule. Additional lecture notes and examples will be given and discussed in class as much as time permits.
- Students are responsible for the reading the material from the text and handouts.
- Students are responsible for following up the lecture materials.
- Students are responsible for reading additional information and examples in order to understand the materials discussed in the lectures.
- If you miss class, there won't be a makeup test, quiz, etc. and you WILL get a zero unless you have a valid excuse.
- Cheating and plagiarism are completely prohibited.
- If you miss more than 15% of classes you will automatically fail the class.

Student Outcomes (SO) Addressed by the Course:

#	*Outcome Description*	*Contribution*
General Engineering Student Outcomes		
(a)	An ability to apply knowledge of mathematics, science, and engineering	***L***
(b)	An ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	***M***
(d)	An ability to function on multidisciplinary teams	
(e)	An ability to identify, formulate, and solve engineering problems	***M***
(f)	An understanding of professional and ethical responsibility	
(g)	An ability to communicate effectively	
(h)	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	A knowledge of contemporary issues	
(k)	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	***H***

H=High, **M**= Medium, **L**=Low

*** This is a tentative list of topics and policies, subject to modification and reorganization.**

Prepared By: Dr. Ahmad Nahar Quttoum **Date: Feb. 20, 2021**