



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Network Engineering And Security Department

NES312 Fundamentals Of Computer Networks

First Semester 2020-2021

Course Catalog

3 Credit Hours. This course explains the fundamentals of TCP/IP layers. It covers Network architectures, Application layer protocols: HTTP, Transmission layer protocols: TCP and UDP, Network Layer services: routing (Data and Control Planes), IPV4 and IPV6, NAT, SDN, Data link layer services: Multiple access Control Protocols, VLAN, MPLS.

Text Book

Title	Computer Networks: A Top-Down Approach Featuring the Internet
Author(s)	James F. Kurose and Keith W. Ross
Edition	7th Edition
Short Name	Ref#1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Data Communications and Networking	Behrouz A. Forouzan	4th Edition	

Instructor

Name	Dr. Basheer Al-Duwairi
Office Location	C5L2
Office Hours	Sun : 10:00 - 11:00 Mon : 11:00 - 12:00 Mon : 15:00 - 16:00 Tue : 12:00 - 13:30 Wed : 11:00 - 12:00 Thu : 09:00 - 10:00
Email	basheer@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 13:00 - 14:30 Room: منصة الكترونية

Teaching Assistant
Eng. Nuha Aljarrah(Section 1)

Prerequisites		
Line Number	Course Name	Prerequisite Type
1753110	NES311 Data Communication	Prerequisite / Study
1753010	NES301 Probability And Queuing Theory	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction to computer networks and the Internet	CH1 From Ref#1
Weeks 3, 4, 5	The application-layer concepts, services, and protocols.	CH2 From Ref#1
Weeks 6, 7, 8	The transport-layer concepts, services, and protocols	CH3 From Ref#1
Weeks 9, 10, 11	Network Layer- The Data Plane	CH4 From Ref#1
Weeks 12, 13	The Network Layer- The Control Plane	CH5 From Ref#1
Weeks 14, 15	The data link-layer concepts, services, and protocols	CH6 From Ref#1

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Use the basic computer networking terminology to describe the different components, services, and applications provided of the Internet [1SO1]	10%	Midterm Exam, Quizes, Final Exam
Understand the design roles of the major components of the computer networks and the Internet such as the host, router, network application, protocol, and network services [1SO1]	10%	Midterm Exam, Quizes, Final Exam
Understand the operation of the major Internet protocols such as the HTTP, DHCP, TCP, UDP, and IP. [1SO1]	20%	Midterm Exam, Quizes, Final Exam
Calculate the major network measure of performance metrics such as packet delay, link utilization, and throughput [1SO1, 1SO2]	10%	Midterm Exam, Quizes, Final Exam

Understand the main principles of reliable data transfer and the algorithms used, and how the TCP, for example, employs such principles to provide reliable data transfer service [1SO1]	15%	Midterm Exam, Quizes, Final Exam
Differentiate between internetworking (i.e.; switching) devices and their functions such hubs, switches, and routers. [1SO1]	5%	Quizes, Final Exam
Differentiate between the virtual-circuit networks and the datagram networks and describe the operation principles of each [1SO1]	5%	Quizes, Final Exam
Differentiate between the multiple-access techniques and protocols, the principle of operation for each, and the advantages and disadvantages of each [1SO1]	10%	Quizes, Final Exam
Understand the operation of the IP protocol and how the hierarchical assignment of IP addresses facilitates the routing of the packets across the network [1SO1, 1SO2]	15%	Quizes, Final Exam

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
87.50	12.50					

Evaluation	
Assessment Tool	Weight
Midterm Exam	30%
Quizes	20%
Final Exam	50%

Policy	
Exams	1. May include: Definitions, True/False, Multiple-Choice, Analysis and Descriptive formats. 2. Use only your own tools: calculator, pens and ruler 3. Instructions on the first page of the exam are quite important. 4. Not abiding by the rules is a reason for dismissal from the exam.
Makeups	Makeup exam should not be given unless there is a valid excuse.
Drop Date	Last day to drop the course is before the 12th week of the current semester.
Cheating	Standard JUST policy will be applied.
Attendance	1. Excellent attendance is expected. 2. According to the JUST policy, a student will receive the grade of ZERO (35%) "failed for absence" if he misses more than 20% of the classes. 3. Attendance will be taken by calling, or through quizzes. 4. If you miss a class, it is your responsibility to find out about any announcements or assignments you may have missed.
Workload	Average work-load student should expect to spend is 8 hours/week.
Graded Exams	Exam grades will be published online (on JUST elearning system), and midterm exam will be solved and discussed during class time (via Zoom).
Participation	1. Participation in the class will positively affect your performance. 2. Disruption and side talks will possibly result in dismissal from class. 3. No eating or chewing gums are allowed in class.

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