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

NES311 Data Communication - JNQF Level: 7
Summer Semester 2023-2024

Course Catalog
3 Credit Hours. Analog and digital transmission, modulation and demodulation, transmission media, data encoding, synchronous and asynchronous transmission, digital carriers, error control, multiplexing, circuit and packet switching, open system standards.
Teaching Method: On Campus

Text Book	
Title	Data Communications and Networking
Author(s)	Behrouz A. Forouzan
Edition	4th Edition
Short Name	Ref#1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Data & Computer Communications	William Stallings	7th Edition	

Instructor	
Name	**Dr. ABDALLAH ALMA'AITAH**
Office Location	-
Office Hours	
Email	ayalmaaitah@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun, Mon, Tue, Wed : 11:30 - 13:00
Room: M5123

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
1712310	CPE231 Digital Logic Design	Prerequisite / Study
242601	EE260 Signal And Systems Analysis	Pre./Con.

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Overview of data communications and networking	**chapter 1** From **Ref#1**
Weeks 2, 3	Network models (TCP/IP, OSI)	**chapter 2** From **Ref#1**
Weeks 4, 5, 6	Data and signals	**chapter 3** From **Ref#1**
Weeks 7, 8, 9	Digital transmission	**chapter 4** From **Ref#1**
Week 10	Analog transmission	**chapter 5** From **Ref#1**
Week 11	Bandwidth utilization	**chapter 6** From **Ref#1**
Week 12	Transmission media	**chapter 7** From **Ref#1**
Week 13	Data transmission over telephone and cable networks	**chapter 9** From **Ref#1**
Week 14	Error detection	**chapter 10** From **Ref#1**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Ability to identify different networking typologies and their merits and shortcomings. [1SO1] [1L7K1]	12%	
Ability to identify functions of layers in the OSI and TCP/IP models. [1SO1] [1L7K1]	6%	
Ability to calculate analogue and digital signals related metrics such as signal bandwidth, data rate, and impairments, by applying engineering and mathematics principles (e.g., db and SNR). [1SO1] [1L7K1]	20%	
Ability to identify and solve engineering problems relevant to digital data encoding and modulation, using different encoding schemes, such as unipolar, polar (NRZ, RZ, Manchester) and bipolar(AMI). [1SO1] [1L7S1]	13%	
Ability to identify the difference between analog-to-digital (e.g., PCM), digital-to-analog (e.g., ASK, FSK, PSK, QAM), and analog-to-analog (e.g., AM, FM, PM) conversion processes. [1SO1] [1L7K1]	12%	

Ability to solve link bandwidth utilization problems by applying different multiplexing methods (e.g., FDM, TDM, WDM). [1SO1] [1L7S1]	13%	
Ability to identify various communication media and the principles of modems and DSL technology. [1SO1] [1L7K1]	8%	
Ability to detect errors in a stream of bits, and to design of CRC registers by applying the mathematics principles of VRC (parity), LRC, Checksum, and CRC. [1SO1] [1L7S1]	16%	

Relationship to Program Student Outcomes (Out of 100%)													
SO1	SO2	SO3	SO4	SO5	SO6	SO7	MSO1	MSO2	MSO3	MSO4	MSO5	MSO6	MSO7
100													

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S1
58	42

Evaluation	
Assessment Tool	**Weight**
First Exam	20%
Quizzes	20%
Final Exam	40%
Second Exam	20%

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	Graded exam papers will be returned within a week.

| 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. |

Date Printed: 2024-06-06