



**Jordan University of Science and Technology**  
**Faculty of Computer & Information Technology**  
**Computer Science Department**

**CIS 442 Business Data Communications**

Winter (Second) 2010-2011

**Course Catalog**

3 Credit hours (3 h lectures). The objective of this course is to present students with a firm understanding of fundamentals, as well as the state-of-the-art of telecommunications in a business oriented manner. Telecommunication technology will be reviewed and current practices discussed. Topics include distributed data processing, communication techniques, network design, LANs and PC networking, and if time allows introductory topics in management and security will be presented. This course is focused on the TCP/IP architecture, but the OSI model is introduced and discussed. Topics like OSI reference model, architecture of circuits, message and packet switching networks, network topology, routing, flow control, capacity assignments, protocols, coding and multiplexing, will be presented with case studies related to business scenarios to give students the hands-on experience as well. Emphasis is also given to networking using Windows and Linux with comparisons.

**Text Book(s)**

<b>Title</b>	Applied Data Communications: A Business-Oriented Approach
<b>Author(s)</b>	James E. Goldman and Phillip T. Rawles
<b>Publisher</b>	John Wiley and Sons, Inc.
<b>Year</b>	2004
<b>Edition</b>	4/E
<b>Title</b>	Other links to tutorials on software and additional material will be presented on time

**References**

<b>Books</b>	<i>Recent references available at JUST university library (book name, author, year, copies available)</i> <ul style="list-style-type: none"><li>○ Jerry FitzGerald and Alan Dennis, Business Data Communications and Networking, 10<sup>th</sup> edition, John Wiley and Sons Inc., 2009.</li><li>○ Raymond R. Panko, Business Data Networks and Telecommunications, 7<sup>th</sup> Edition, Prentice Hall, 2008.</li></ul> Other links to tutorials on software presented on time.
<b>Internet links</b>	<a href="http://www.mcgrawhill.com">www.mcgrawhill.com</a>

<b>Instructors</b>	
Instructor	<b>Dr. Mostafa Z. Ali</b>
Office Location	Medical building, Ph4 level -1
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<b>Class Schedule &amp; Room</b>	
Section 1: Lecture Time: Sunday, Tuesday, Thursday 09:15 -10:15 Room: CIS LAB1	

<b>Office Hours</b>	
Sunday, Tuesday, Thursday: 01:15 -2:15	

<b>Teaching Assistant</b>	
TBD	

<b>Prerequisites</b>	
<b>Prerequisites by course</b>	Algorithms (CS 211)

<b>Topics Covered</b>			
<b>Topics</b>	<b>Chapters in Text</b>	<b>Week No.</b>	<b>Case Study posted</b>
The Data Communications Industry	Slides + Goldman [1]	1	1 (ref: Ch1+2)
Data Communications Concepts	Slides + Goldman [2]	2	
Basic Data Communication Technology Windows XP + Windows 7 Review	Slides + Goldman [3]	3	2(ref: Ch3+4)
Local Area Networks	Slides + Goldman [4]	4-5	
Wide Area Networking Concepts and Architectures	Slides + Goldman [6]	6	3(ref: Ch6+7)
Local Area Network Communications Protocols	Slides + Goldman [7]	7	Final Project
TCP/IP Network Design	Slides + Goldman [8]	8	4(ref: Ch8+9)
Local Area Network Operating Systems and Access	Slides + Goldman [9]	9	
The Network Development Life Cycle	Slides + Goldman [10]	10	
Network Management	Slides + Goldman [11]	11-12	
Network Security	Slides + Goldman [12]		If time allows

<b>Mapping of Course Objectives to Program Outcomes<sup>1</sup></b>	<b>Assessment method</b>
1. Define the term protocol architecture and explain the need for and benefits of a communications architecture	Exams, Case Studies
2. Give a brief description of the OSI architecture and each of its constituent layers.	Exams, Case Studies
3. Describe the TCP/IP protocol architecture and explain the functioning of each layer.	Exams, Case Studies

<sup>1</sup> Lower-case letters in brackets refer to the Program outcomes

4. Discuss the various transmission impairments that affect the quality and transfer rate of information: attenuation, delay distortion, noise	Exams, Case Studies
5. Explain the difference between asynchronous and synchronous transmission	Exams, Case Studies, FP
6. Describe the purpose of EIA-232 and other interfacing standards	Exams, Case Studies
7. Discuss the various control mechanisms required for two devices to exchange data: flow control, error detection, and error control	Exams, Case Studies
8. Explain the need for a data link control protocol	Exams, Case Studies, FP
9. Describe the basic operation of a data link control protocol such as HDLC	Exams, Case Studies, FP
10. Describe the use of multiplexing in digital carrier systems	Exams, Case Studies
11. Explain the difference between statistical TDM and synchronous TDM	Exams, Case Studies
12. Explain the need for a communications network for wide area data communications	Exams, Case Studies, FP
13. Define packet switching and describe the key elements of packet-switching technology	Exams, Case Studies, FP
14. Discuss routing strategies in a switched network and congestion control	Exams, Case Studies
15. Discuss the general concepts of local area networks (LANs)	Exams, Case Studies, FP
16. Discuss the topologies and transmission media commonly used for LANs and describe the combinations that are usually found	Exams, Case Studies, FP
17. Discuss the most important types of high-speed LANs: Ethernet-type, Fiber Channel, token ring, and wireless	Exams, Case Studies

Relationship to Program Outcomes (score out of 5)													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
5	4	5	5				4	3	5	4			

Evaluation		
Assessment Tool	Expected Due Date	Weight
First Exam	According to the department schedule	20%
Second Exam	According to the department schedule	20%
Project	TBD	10 %
Case Studies	Upon notification in the previous class	10 %
Final Exam	According to the University final examination schedule	40 %

Policy	
<b>Attendance</b>	Attendance is very important for the course. In accordance with university policy, students missing more than 10% of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class.
<b>Homework/Lab</b>	<ul style="list-style-type: none"> <li>Students are expected to keep up with the material as it is presented and submit assignments on time.</li> <li>Students handing in similar assignments will receive a grade of 0 (ZERO) and face possible disciplinary actions</li> </ul>
<b>Exams</b>	All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied as convenient. The date of the Exams will be scheduled later.
<b>Cheating</b>	<ul style="list-style-type: none"> <li>Standard JUST policy will be applied.</li> </ul>
<b>Makeup</b>	<ul style="list-style-type: none"> <li>Makeup exam should not be given unless there is a valid excuse.</li> </ul>

Applied Data Communications: A Business-oriented Approach. Your Rating: Currently Stars. Separate tags with commas, spaces are allowed. Use tags to describe a product e.g. for a movie Themes heist, drugs, kidnapping, coming of age Genre drama, parody, sci-fi, comedy Locations paris, submarine, new york.