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)

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

References

Books	***Recent references available at JUST university library (book name, author, year, copies available)*** o Jerry FitzGerald and Alan Dennis, Business Data Communications and Networking, 10th edition, John Wiley and Sons Inc., 2009. o Raymond R. Panko, Business Data Networks and Telecommunications, 7th Edition, Prentice Hall, 2008. Other links to tutorials on software presented on time.
Internet links	www.mcgrawhill.com

Instructors	
Instructor	**Dr. Mostafa Z. Ali**
Office Location	Medical building, Ph4 level -1
Office Phone	720-1000 ext: 23917
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Class Schedule & Room
Section 1: Lecture Time: Sunday, Tuesday, Thursday 09:15 -10:15 Room: CIS LAB1

Office Hours
Sunday, Tuesday, Thursday: 01:15 -2:15

Teaching Assistant
TBD

Prerequisites	
Prerequisites by course	Algorithms (CS 211)

Topics Covered			
Topics	**Chapters in Text**	**Week No.**	**Case Study posted**
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	

Mapping of Course Objectives to Program Outcomes[1]	Assessment method
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

[1] 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	
Attendance	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.
Homework/Lab	• Students are expected to keep up with the material as it is presented and submit assignments on time. • Students handing in similar assignments will receive a grade of 0 (ZERO) and face possible disciplinary actions
Exams	All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied as convenient. The date of the Exams will be scheduled later.
Cheating	• Standard JUST policy will be applied.
Makeup	• Makeup exam should not be given unless there is a valid excuse.

Prepared by: Dr. Mostafa Z. Ali Last Modified: January 1, 2011

Applied Data Communications: A Business-Oriented Approach [James E. Goldman, Phillip T. Rawles] on Amazon.com. *FREE* shipping on qualifying offers. This book provides frameworks and methodology for solving problems as technology continues to advance. A top-down approach is used.Â Food Handmade Health, Household & Baby Care Home & Business Services Home & Kitchen Industrial & Scientific Just for Prime Kindle Store Luggage & Travel Gear Luxury Beauty Magazine Subscriptions Movies & TV Musical Instruments Office Products Pet Supplies Prime Video Software Sports & Outdoors Subscription Boxes Tools & Home Improvement Toys & Games Vehicles Video Games. He is author of bestselling textbooks, including Applied Data Communications: A Business-Oriented Approach, 2/e (Wiley, 1998) and Client/Server Information Systems: A Business-Oriented Approach (Wiley, 1999). He maintains an active consulting practice and is a Microsoft Certified Systems Engineer. Phillip T. Rawles is Co-author and Assistant Professor of Telecommunications and Networking Technology at Purdue University.