

TM610WS – Business Information Networks
Course Outline

Room:
Semester: Spring 2004
Phone: 908-735-6795

Hours: 8:00P-11:00P Sunday eve. "Class-time"
Instructor: Prof. Frank Panzarino
E-Mail: fpanzari@stevens.edu

Text: Stallings, William. *Data and Computer Communications*, Seventh Edition 2004, Prentice-Hall, Upper Saddle River NJ ISBN 0-13-100781-9

Course Description: This course focuses on data and computer communications, information network architectures and standards. Topics include: information characteristics and requirements for voice, video, image, and data; protocol definitions and performance analyses for distributed networks; network topologies; integrated services digital networks (ISDN); Local area networks (LAN) functional characteristics, performance and analysis studies for Ethernet and token ring as primary technologies; internetworking; Metropolitan Area Networks (MAN) including: FDDI, DQDB; internetworking; and Wide area Networking (WAN) technologies including Frame Relay, Asynchronous Transfer Mode (ATM).

Prerequisite(s): TM601, TM605

Course Credits: 3

Grading:

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|--------------------------------------------------------------|---------------------------|
| • "Proctored" Midterm Exam | 30% (or 30 points) |
| • "Prometric" Final Comprehensive Exam | 40% (or 40 points) |
| • Project-[Term Paper/Presentation] (more details to follow) | 10% (or 10 points) |
| • Homework Assignments | 10% (or 10 points) |
| • Web-CT Discussion | 10% (or 10 points) |

Web-CT "Class" Discussion(5 points per ½ semester):

- Post a minimum of 2 questions (per ½ semester) pertaining to course subject matter.
- Post a minimum of 2 responses (per ½ semester) to answer student questions pertaining to course subject matter.
- Post a minimum of 1 question (or response) on general telecommunications topics (news).

Ethical Conduct: The following statement is printed in the Stevens Graduate Catalog and applies to all students taking Stevens courses, on and off campus.

"Cheating during in-class tests or take-home examinations or homework is, of course, illegal and immoral. A Graduate Academic Evaluation Board exists to investigate academic improprieties, conduct hearings, and determine any necessary actions. The term 'academic impropriety' is meant to include, but is not limited to, cheating on homework, during in-class or take home examinations and plagiarism."

Consequences of academic impropriety are severe, ranging from receiving an "F" in a course, to a warning from the Dean of the Howe School, which becomes a part of the permanent student record, to expulsion.

Reference: The Graduate School Catalog, Academic Year 2001-2002: Stevens Institute of Technology, pp. 27-28.

WEEK	TOPIC	READING	Assignment
1 02/01	Course preface and overview. -Intro to Mobile Wireless	Class notes	Homework 1.
2 02/08	Review/Discussion of homework # 1. Chapter 14: Cellular Wireless Net. (Stallings) -Principles of Cellular Networks -First-Generation Analog -Second-Generation CDMA -Third-Generation Systems	Class notes and pages: (Stallings pp.376-380) Class Notes	Homework 2.
3 02/15	Review/Discussion of homework # 2. Chapter 15: LAN Overview (Stallings) -Background -Topologies and Trans. Media -LAN Protocol Architecture -Bridges -Layer 2 & Layer 3 Switches	Class notes and pages: (Stallings pp. 450-464) (Stallings pp. 470-495)	Homework 3.
4 02/22	Review/Discussion of homework # 3. Chapter 16: High-speed LAN's (Stallings) -Emergence of High-speed LAN's -Ethernet -Token Ring -Fibre Channel	Class notes and pages: (Stallings pp. 495-507)	Homework 4.
5 02/29	Review/Discussion of homework # 4. Chapter 17: Wireless LAN's (Stallings) -Overview -Wireless LAN Technology -IEEE 802.11 Architecture & Svc -IEEE 802.11 MAC -IEEE 802.11 Physical Layer	Class notes	Homework 5.
6 03/07	Review/Discussion of homework # 5. Exam Review & Discussion of Project Chapter 18: Internet Protocols (Stallings) -Basic Protocol Functions	Class notes and pages: (Stallings pp.527-549)	NOTE: Study for Midterm Exam
7 03/14	Midterm exam [Chapters 14,15,16,17(Stallings) & Mobile Wireless]	Note: Exam may be on-campus or proctored remotely	Homework 6.

8 03/21	<p>Review/Discussion of midterm exam. Review/Discussion of homework # 6.</p> <p>Chapter 18: Internet Protocols (Stallings) -Principles of Internetworking -Connectionless Internetworking -Internet Protocol -IPV6</p>	<p>Class notes and pages:</p> <p>(Stallings pp. 549-566)</p>	Homework 7.
9 03/28	<p>Review/Discussion of homework # 7.</p> <p>Chapter 19: Internetwork Operation(Stallings) -Multicasting -Routing Protocols -Integrated Services Architecture -Differentiated Services</p>	<p>Class notes, handouts and pages:</p> <p>(Stallings pp. 569-597)</p>	Homework 8.
10 04/04	<p>Review/Discussion of Homework # 8.</p> <p>Chapter 20: Transport Protocols(Stallings) -Connection oriented transport -TCP -TCP Congestion Control -UDP</p>	<p>Class notes and pages:</p> <p>(Stallings pp. 598-604) (Stallings pp. 607-627)</p>	Homework 9.
11 04/11	<p>Review/Discussion of homework # 9.</p> <p>Chapter 13: Congestion in Data Networks -Effects of Congestion -Congestion Control -Traffic Management -Congestion Control in Packet Net -Frame Relay Congestion Control</p>	<p>Class notes and pages:</p> <p>(Stallings pp. 627-646)</p>	Homework 10.
12 04/18	<p>Review/Discussion of homework # 10.</p> <p>Chapter 13: Congestion in Data Networks -ATM Traffic Management -ATM-GFR Traffic Management -Intro. To Performance and Internet Traffic</p>	<p>Class notes and pages:</p> <p>(Stallings pp. 383-390)</p>	<p>Study for Final Exam</p> <p>Project/paper is due next week.</p>
13 04/25	<p>Final exam [Chapters 18,19,20,13(Stallings), Performance and Internet Traffic</p> <p>Project is due.</p>	<p>Note: Prometric Exam</p>	