

SYLLABUS: EETS5315/7315 — DATA COMMUNICATIONS

as of January 18, 2012

Semester: Spring, 2012, Classes starting on Campus: Wednesday, January 18, 2012
SMU Course No: EETS 5315/7315 (SMU Lyle School of Engineering)
Instructor Office: Room 339J, 214-768-3048 during Office Hours: 12:50-1:50 p.m. MW, or by appointment.
Mailing Address: (For postal mailing **only**) Dr. H. Charles Baker, P. O. Box 750338, Dallas, TX 75275-0338
Shipping Address: (For FedEx, UPS) Dr. H. Charles Baker, Room 308, 6251 Airline Rd., Dallas, TX 75205
Home Office: (214)343-3229 **e-mail:** hc_baker@sbcglobal.net **NEVER use cbaker@smu.edu**
Course Website: <http://smuhandouts.com>
Course Days, Times Section 001 (Live, on Campus): 2:00-3:20 p.m. MW, Central Time, Room 101J, 6251 Airline Rd., Dallas

Recommended Text*: Stallings, Data and Computer Communications, 9th Edition, 2010. SMU Bookstore or www.amazon.com or www.buy.com

* The textbook is recommended as an excellent in-depth reference for all students, but is not required.

Required Reference: Newton's Telecom Dictionary, Current Edition (SMU Bookstore, www.amazon.com, or www.buy.com)

Free Study Aid: Softcopies of all prepared video notes and required handouts will be posted at <http://smuhandouts.com> These materials are no substitute for attending all classes.

Prerequisites: Graduate standing or permission of Instructor.

Course Description: Overview of Open Systems Interconnection Reference Model. Design criteria and issues for data communications systems, architectures, protocols and standards relating to layers 1-4, including the following: serial interfaces, asynchronous transfer mode, synchronization issues, SONET, link protocols, error control, multiplexers & concentrators, network protocols, packet switching, frame relay, virtual networks and services, Ethernet I & II (DIX), LAN/WAN technology, construction of the Internet, routers and gateways, TCP/IP, tunneling, optimization techniques, high bit rates over UTP, and basic Internet protocols.

Grading: Three 1-hour examinations and one comprehensive final exam. The highest three grades out of the four, each count 30% of the course grade, and the lowest grade counts 10%. A=>90, A-=>87, B+=>84, B=>80, B-=>77, C+=>74, C=>70, C-=>67, D+=>64, D=>60, D-=>57, F<57. (=> means "equal to or greater than.") A grade of "Incomplete" can be given in specific circumstances (such as extended illness), in which the student is passing in work completed, and extra time is needed for a regular grade. A special form must be completed jointly by the student and instructor in order for the Incomplete to be given. See the complete University policy concerning grade of Incomplete as stated in the SMU Catalog. Students in EETS 5315 get one free point; i.e., A=>89, etc.

Examinations: 2/27, 4/2, 4/30, and 5/4. Tests are based on material given in lectures, using PowerPoint video notes as an outline, plus website material. Tests will each be given one time only in Room 101J. If you don't have an approved proctor, you must take each test at the time announced. Except in case of illness, written request for variance must be made by 2/1/12; this is a University rule!

Class Attendance: Students are responsible for all material covered in class. 100% attendance is required for good notes. In case of unresolved discrepancies between lecture and textbook, the lecture will prevail. Review of class lectures is expected. ALL students should review the video stream or DVD recording of each class at least once. Video stream should be viewed within 24 hours. Please reread the last three sentences.

Off-Campus Sites: The class is available for off-campus students who have a work conflict, on Video Streaming over the Internet, or DVD. DVD is available only in areas where there is no high-speed Internet.

Media Delays and Testing: Normally, video streaming of lectures will begin later in the same day as the live lecture. The normal DVD delivery for U.S. locations is in the week after the week in which the live class lecture was given. **A person taking this course by DVD follows the same schedule as a campus student except that the time scale is slipped by the amount of delay in getting the recording.** Example: If you normally receive media on Thursday following the week after a class, and you normally view lectures on the next day (Friday), then that Friday is day "0" in counting any lateness or grace period. All students who do not have an SMU-approved proctor must take all tests and exams on campus on the dates shown. Finding a suitable proctor and getting him/her approved is the student's responsibility. [Students in Section 418 Dallas Area but off-campus will normally be able to find a suitable test proctor at their place of employment.] All students except DVD students are expected to take all exams at the regular time, subject to proctor convenience, or have received written permission from instructor in advance. For approval of proctor: http://lyle.smu.edu/academic/distance_coordinator.html Internet streaming: http://lyle.smu.edu/academic/distance_download.html Username = Student ID; password = Same as for ACCESS.

Students with Disabilities If you need academic accommodations for a disability, you must first contact Disability Accommodations & Success Strategies (DASS) at 214-768-1470 or www.smu.edu/alec/dass.asp to verify the disability and to establish eligibility for accommodations. Then you must schedule an appointment with the professor to make appropriate arrangements.

Religious Holidays: Religiously observant students wishing to be absent for religious events that require missing classes/tests should notify the instructor in writing by February 1*, and should discuss in advance with the professor acceptable ways of making up any exam missed because of the absence. *SMU Requirement!!

Tests: Each test covers approximately material from the previous test forward through the last class before this test. The main exception is that both Tests #1 and #2 will have HDLC sequence questions. The Final Exam is comprehensive (i.e., cumulative) for the entire course. Tests and Exam are Closed Book and Closed notes. No books, calculators, or communicating devices are allowed during tests/exams.

COURSE SCHEDULE FOR EETS 5315/7315 (As of 1/18/2012)

Wk	<u>Approx. Date</u>	<u>Reference</u>	<u>Topics</u>
1	1/18		Introduction; Standards Organizations, Protocols & Architectures
2	1/23	WS OSILayers	Open Systems Interconnection, Encapsulation vs. Tunneling, ASCII Coding,
	1/25	WS S/S Synch	IA5, IRA, Bit numbering, Bit order, Timing example, Interface Specs
3	1/30		ATM & SONET
	2/1		Data-Link Protocols; HDLC; Error Detection Hash calculations, USRT
4	2/6	WS CRC Worksheet	Continuation of Error Detection (hardware)
	2/8	WS IS 7809	HDLC Repertoire; Connectionless and UN Example
5	2/13		HDLC formats and classes: BA Examples, Sliding Window Protocols
	2/15	WS IS 4335-B	HCLC Frames; International Notation, Extended Control Fields
6	2/20	--	Multiplexing; Switching, Spoofing
	2/22**	WS Networking Ex.	Switching Concepts, Concentrators
7	2/27	WS Sample Test #1	TEST #1
	2/29		Virtual circuits, Intro to X.25; logical channels & virtual calls
8	3/5	WS X.25	Transparency and flexible protocols; Intro. to Layer 3, Virtual Networks
	3/7	WS X.2	Layer 3; subnets and catanets; Frame Relay; CIR, Network Delays
--	3/12 & 14		SMU SPRING BREAK
9	3/19		Intro. To ISDN, definitions, Basic Rate Perfect Scheduling Algorithm
	3/21		Local Area Networks (PANs, LANs, CANs, MANs, and WANs)
10	3/26	WS EtherType	Ethernet I & II (DIX); LAN Topologies & Evolution
	3/28**	IETF & RFC's	Coden's Law vs. the Linus Syndrome; TCP/IP Protocol Suite
11	4/2	WS Sample Test #2	TEST #2 ;
	4/4		LAN Repeaters, Bridges, Routers, & Switches; Enterprise Networks
12	4/9		TCP/IP, Internets, Intranets, & Extranets (VPNs); Issues; Routing Protocols
	4/11		MPLS; IPv4 & IPv6
13	4/16	WS DNS, RTP	Domain Name System
	4/18	WS ARP, DHCP	Internet Protocols; Services vs. Technologies
14	4/23		High Bit Rates over UTP
	4/25**		High-Speed Digital Services
15	4/30**	WS Sample Test #3	TEST #3
	5/4	WS Sample Final Ex.	COMPREHENSIVE FINAL EXAM, 11:30 a.m., May 4, 2011, Room101 Junkins. 50 True/False questions (25 true; 25 false)

** Students may be able to improve their grade on a test/exam by submitting non-trivial non-ambiguous prospective test questions. The formats used in sample tests must be used. To be considered, the questions must be e-mailed to the Instructor at least 3 days before the test or examination is to be given. If a student's question is used in the test/exam, the student will (hopefully) know the correct answer and do better on the exam.