TDC 460
Foundations of Network Technologies
Summer – I Quarter 2019

Instructor: Rami M. Salahieh
Office: LEWIS 1105 by appointment/Classroom LEWIS 1105
Phone: (219) 201-2925 (day) No text, only calls by appointment via email.
Class Meeting Time & Location: Mon & Wed 5:45pm to 9pm, Lewis 1105.
E-mail: ramidepaul@gmail.com

Office hours: Mon & Wed 4:45pm to 5:30pm before class (LEWIS 1105)

Objectives of course:

An introductory course on network technologies for local and wide area networks. The course examines in detail the core concepts for network architectures, Ethernet systems including wired, wireless, and Metro, virtual local area networks, storage area networks, optical networking, and the more traditional network services such as T-1, frame relay, Asynchronous Transfer Mode (ATM), and SONET.

Course Management System:
D2L will be used in this course

Textbooks and resources:
- Textbook: B. A. Forouzan, Data Communications and Networks, 5th Edition, McGraw-Hill:
- on-line references: provided in topic outline
- course notes: supplied for every lecture
- Supplemental references:
  - Interworking Technology Handbook, Cisco Press, 2004
- Cisco *Packet Tracer* Simulator (available on course D2L site)

Prerequisites:
(TDC 405 and TDC 413) or [(TDC261 or IT263) and (TDC363 or CNS 378)]

Grading:
Final Exam   40%
(2) Labs   30%
(2) Homework   30%
Class participation   refer to grading scale adjustments
Online Discussion D2L   required but not graded.

- Late Lab assignments will be penalized 50% for late submission.
- Late Homework assignments will **not** be accepted (no credit will be received)
- Turn all assignments in using D2L.
- Exams are closed book, open notes (two pages, double sided ok) and will take approximately 2 ½ hour to complete. The final exam is comprehensive.
- Make-up exams will be allowed based on prior approval from the instructor

Grading Scale:

A	92% - 100%
A-	89% - 91%
B+	85% - 88%
B	81% - 84%
B-	77% - 80%
C+	73% - 76%
C	69% - 72%
C-	65% - 68%
D	60% - 64%
F	less than 60%

Grading Scale Adjustments:

- Depending on class averages, a *downward* **adjustment** in the grading scale *may* be implemented
- **Class participation (LIVE Section)** may affect final course average from a range of +2% to -2%. The following percentage adjustments will be applied to the final grade based on demonstrated class participation/contribution.
  - +2%: highly meaningful participation/contribution, consistent attendance
  - +1%: solid participation/contribution, consistent attendance
  - 0%: occasional clarifying questions, consistent attendance
  - -1%: passive, non-relevant questions, one class missed
  - -2%: passive, non-relevant questions, several classes missed
- **Class contribution (DL Section)** may affect final course average from a range of +2% to -2%. The following percentage adjustments will be applied to the final grade based on demonstrated class contribution using the course collaboration site
  - +2%: highly meaningful contributions/student assistance provided
  - +1%: solid contributions/student assistance provided
  - 0%: one contribution or student assistance provided
  - -1%: occasional clarifying questions
  - -2%: none recorded
- **No extra credit** assignments will be provided in this class.

E-mail Correspondence Format:

- Due to the many e-mails that I receive on a daily basis, I asked you to format your e-mail subject heading as follows

  e.g.   TDC 460: question from lecture day #1

- E-mail responses will be returned no later than two calendar days unless I have notified the class otherwise

General Course Advice:

I view TDC 460 as a **challenging** course due to the breadth of material, the quantity of terms and definitions, and the inherent complexities of networking protocols. In order to succeed, each student must read the reference material, engage in class lectures/discussion, allocate enough time for HW/labs, and take advantage of my office hours

On-Line Networking Periodicals

The following on-line publication is a useful periodical that covers news/updates in the networking trade. I encourage you to bookmark and review:
NETWORKWORLD

Approximate outline:

WK#	TOPICS	LAB/HW DUE	Reference Material (5th Edition)
#1 Mon 6/17	Course Introduction (Syllabus) Communication model - concepts and definitions Network classifications Standards Protocols and network architectures Network Addresses	Lab1/HW1 Out	Forouzan DC&N Chapters 1 and 2 Cisco's Internet Growth Forecast MINTS Internet Traffic analysis Cisco IOS Command Line Tutorial 2950 Cisco Switch Family overview 2950 software configuration guide
#1 Wed 6/19	Data Signals Data rate, signal bandwidth, channel bandwidth Transmission and network impairments Physical Layer media overview		Forouzan DC&N Chapters 3, 7

#2 Mon 6/24	Data Link Layer functions and methods
	Introduction to LAN networks and market trends
	802.3 Ethernet LAN standards
	    Logical link control and frame formats
	    Physical layer overview and methods
		Lab2/HW2 Out	Forouzan DC&N Chapters 9, 10.1-10.4,11.1-11.2, 13
			IEEE 802 standards

#2 Wed 7/26	802.3 Ethernet LAN standards (continued)
	    MAC layer: CSMA/CD protocol
	    Full duplex and Auto-negotiation
	    Flow control
			Forouzan DC&N Chapters 12.1
			Ethernet Auto-negotiation overview

#3 Mon 7/1	Ethernet LAN networking
	    Ethernet switch networks
	    802.1Q VLAN
	    Link aggregation
		Lab1/HW1 Due by 11:59pm CST	Forouzan DC&N Chapters 17
			Understanding RSTP

#3 Wed 7/3	Ethernet 802.1p Class of Service 802.11 LAN Wireless standards and principles		Forouzan DC&N Chapters 30.1-30.2 Forouzan DC&N Chapter 15.1-15.2 802.11 Overview
#4 Mon 7/8	Introduction to WAN networks and market trends *Legacy* WAN physical layer transport technologies *Emerging* WAN physical layer transport technologies		Forouzan DC&N Chapters 6.1, 14.1-14.3 Overview of SONET Overview of T-1 Carrier Systems
#4 Wed 7/10	WAN Access network technologies/protocols WAN switching methods – overview Traffic policing and shaping		Broadband Access Technologies
#5 Mon 7/15	*Legacy* WAN switching protocols and methods *Emerging* WAN switching technologies Review for final exam	**Lab2/HW2 Due** by 11:59pm CST	Forouzan DC&N Chapters 8, 18, 30.1,14.4 Switching methods overview Policing and Shaping overview MEF Carrier Ethernet SLA Provider Bridging Overview
#5 Wed 7/17	**FINAL EXAM**		

Course Policies

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at http://academicintegrity.depaul.edu/. If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: cdm.depaul.edu/enrollment.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.
To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu.
Lewis Center 1420, 25 East Jackson Blvd.
Phone number: (312)362-8002
Fax: (312)362-6544
TTY: (773)325.7296