

TDC 511 - Telecommunications Practicum

Spring 2018/2019

Instructor Ahmad Abusini

Office Wednesday 5:00-5:45PM and 9:00PM -9:45PM
Hours CDM 428

Course Website <http://d2l.depaul.edu>

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Meeting time Wednesday 5:45PM - 9:00PM

Location CDM 202

Text:

- No textbook
- No reference books
- Selected on-line reading of device configuration guide

Description:

Introduction to the design and management of data networks for the enterprise environment. Network design includes physical design, logical design, LAN, WAN, and experimental design. Network management covers switch configuration, router configuration, fault tolerant configuration, SNMP configuration, and network trouble shooting.

Course objectives and Goals:

- Understand Local Area Networks (LANs) and Wide Area Networks (WAN) to achieve business objectives and be able to choose appropriate technologies to meet enterprise user requirements.
- Be able to select and interconnect LAN/WAN hardware (devices)
- Compare alternatives in implementations and design enterprise networks
- Design and implement Fault Tolerant Network

Prerequisites:

TDC 460 and TDC 463

Course Breakdown:

| Grading | |
|---|-----------|
| Description | Weighting |
| Lab01 - Performance Baselineing (LAN Lab) | 5% |
| Lab02 - Switch (Link Aggregation) Configuration (DLPOD) | 7% |
| Lab03 - VRRP Configuration (DL POD) | 7% |
| Lab04 - NIC Teaming (LAN Lab) | 7% |
| Lab05 - Linux NAT and Firewall Configuration (LAN Lab) | 7% |

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| Lab06 - Network Management (DLPOD) | 7% |
| Project A - Physical Design (report only) | 10% |
| project B - Logical Design (report only) | 10% |
| Project C - Experimental Design and Test (DL POD) | 15% |
| Final Exam (close notes) | 25% |
| Total | 100% |

Grading Scale

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|----------------|----------------|---------------|----------------|
| A = 90% - 100% | A- = 88% - 90% | B+ = 86%-88% | B = 80% - 86% |
| B- = 78% - 80% | C+ = 76% - 78% | C = 70% - 76% | C- = 68% - 70% |
| D+ = 66% - 68% | D = 60% - 66% | F = 0% - 60% | |

Course Schedule:

| Week | Date | Course Description | Lab/Project |
|------|------------|---|--|
| 1 | 04/03/2018 | 1. Course Introduction: OSI Model, 2. Performance Benchmark Testing 3. Network Cabling | Lab01 - Performance Benchmark Test |
| 2 | 04/10/2018 | Physical Design 1. Structured Cabling Plant 2. Equipment Selection 3. Visio | Project A – Physical Design |
| 3 | 04/17/2018 | Ethernet Theory and Configuration 1. STP and RSTP Configuration (review) 2. Link Aggregation (802.3ad, 802.1ax) 3. VLAN and VLAN Trunking 4. 802.1X requirement and configuration | Lab02 - Link Aggregation and VLAN Trunking |
| 4 | 04/24/2018 | Internet Protocol (IP) and Routing 1. IP 2. DHCP 3. Static and Dynamic Routing 4. VRRP | Lab03 - VRRP |
| 5 | 05/01/2018 | Design of Local Area Network 1. Three-layer LAN design (Access, Distribution, and Core) 2. Redundancy and Fault Tolerance 3. NIC Teaming 4. Layer-3 Switching | Lab04 - NIC Teaming (Research Environment) |
| 6 | 05/08/2018 | Design of Wide Area Network 1. WAN Technologies 2. IP-VPN 3. Project B | Project B – Logical Design |

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| 7 | 05/15/2018 | Network Security: Firewall and NAT 1. Fundamentals of Network Security 2. Firewall 3. NAT 4. Proxy | Lab05 - Firewall and NAT configuration |
| 8 | 5/22/2018 | Network Management: SNMP 1. Network Management: functions and scope 2. SNMP 3. MIB 4. SNMP Trap | Lab06 - Network Management |
| 9 | 05/29/2018 | Network Monitoring, and Trouble Shooting Experimental Design: Project C | Project C – Experimental Design |
| 10 | 06/05/2018 | Course Reflection, Final Exam Review | |
| | 06/12/2018 | 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

All assignments must be completed individually. 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

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Proctored exams for Online Students

If you are an online learning student living in the Chicagoland area (within 30 miles of Chicago), you will need to come to one of DePaul's campuses to take an exam. Online learning students outside of the Chicagoland area are required to locate a proctor at a local library, college or university. You will need to take the exam within the window your instructor gives. Students should examine the course syllabus to find exam dates and the instructor's policy on make-up exams. Detailed information on proctored exams for online learning students can be found at <http://www.cdm.depaul.edu/onlinelearning/Pages/Exams.aspx>