

SYLLABUS

Advanced Network Technologies and Design

NET 560

Winter Quarter 2023

Instructor: Greg Brewster
Class Sessions: Thursdays at 5:45 pm
Office Hours: Thursdays 4:00 - 5:30 pm – on Zoom by appointment
E-mail: gbrewste@depaul.edu
Course Site: <https://d2l.depaul.edu>
Prerequisite: NET 463
Text: MPLS Fundamentals, Luc de Ghein, Cisco Press, 2007.

This course introduces advanced network technologies and design, including Multi-Protocol Label Switching (MPLS) services, IPv6 tunneling, and Software-Defined Wide Area Network (SD-WAN) technologies. MPLS Virtual Private Networks, traffic engineering, VPLS, IPv6 routing, 6PE, BGP, Network Function Virtualization and SD-WAN are all included.

Required coursework components and their contribution to the final grade will be:

- a) 3 homework assignments (30%)
- b) 5 lab exercises (40%)
- c) Midterm Quiz (15%)
- d) Project (15%)

The Midterm Quiz will be administered as an online D2L Quiz on Thursday, February 10, 2022. Lab exercises will require students to configure Cisco routers to do OSPF and BGP routing, IPv4 over MPLS, MPLS VPNs, Ethernet over MPLS, IPv6 over MPLS and route maps.

Further details on each assignment will be distributed in class. Assignments received late will be penalized as follows: up to 1 day late is 5% penalty; 1 - 2 days late is 10% penalty, 2 – 3 days late is 15% penalty; 3 – 7 days is 20% penalty; more than 1 week late is 30% penalty. Any homeworks that are submitted after Homework Answers are posted on D2L receives a grade of 15/50. Although students may discuss general course principles, all assignments must be completed individually and duplicate work will receive no credit for either party. The strongest of sanctions will be imposed on anyone who submits as his/her own any work which has been prepared by someone else. I expect all students to read and understand DePaul's policy on Academic Integrity

Grade scale will be: 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%. Grade scale may be changed to the students' advantage.

Class Schedule

NET 560

Winter Quarter 2023

<i>Date</i>	<i>Topics</i>	<i>Text Readings**</i>	<i>Assignments</i>
Jan. 5	IPv4 Routing, BGP and CEF	Chapter 6	
Jan. 12	MPLS Label Switching and LDP	Chapters 1, 2, 3, 4	<i>HW #1 out</i> <i>Lab #1 out</i>
Jan. 19	Layer 2 Services: AToM and VPLS	Chapter 10, 11	<i>Lab #2 out</i> <i>HW #1 due 1/24</i>
Jan. 26	MPLS VPNs	Chapters 7	<i>HW #2 out</i> <i>Lab #1 due 1/31</i>
Feb. 2	MPLS Traffic Engineering	Chapters 8	<i>Lab #3 out</i> <i>HW #2 due 2/3</i>
Feb. 9	Midterm Quiz		<i>Lab #2 due 2/14</i>
Feb. 16	IPv6 Addressing and Routing, IPv6 over MPLS (6PE, 6VPE),	Chapter 9	<i>Lab #4 out</i> <i>Lab #3 due 2/21</i>
Feb. 23	MPLS QOS, BGP Route Maps	Chapter 12, 13	<i>HW #3 out</i> <i>Lab #5 out</i>
Mar. 2	Network Function Virtualization (NFV) and Software Defined Networks (SDNs)		<i>HW #3 due 3/7</i>
Mar. 9	Software Defined WAN (SD-WAN) services.		<i>Lab #4 due 3/10</i> <i>Lab #5 due 3/14</i>
Mar. 16	Project Due		

** Note that some parts of some Chapters are not required. Please see [NET 560 Reading Guide](#) for detailed reading list for each Chapter.

Changes to Syllabus

This syllabus may be subject to changes as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class and posted under News in D2L.

Online Course Evaluations

Instructor and course evaluations provide valuable feedback that can improve teaching and learning. The greater the level of participation, the more useful the results. As students, you are in the unique position to view the instructor over time. Your comments about what works and what doesn't can help faculty build on the elements of the course that are strong and improve those that are weak. Isolated comments from students and instructors' peers may also be helpful, but evaluation results based on high response rates may be statistically reliable (believable). As you experience this course and material, think about how your learning is impacted. Your honest

opinions about your experience in and commitment to the course and your learning may help improve some components of the course for the next group of students. Positive comments also show the department chairs and college deans the commitment of instructors to the university and teaching evaluation results are one component used in annual performance reviews (including salary raises and promotion/tenure). The evaluation of the instructor and course provides you an opportunity to make your voice heard on an important issue – the quality of teaching at DePaul. Don't miss this opportunity to provide feedback!

Academic Integrity and Plagiarism

This course will be subject to the academic integrity policy passed by faculty. More information can be found at <http://academicintegrity.depaul.edu/>.

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

Withdrawal

Students who withdraw from the course do so by using the Campus Connection system (<http://campusconnect.depaul.edu>). Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalty.

Retroactive Withdrawal

This policy exists to assist students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. During their college career students may be allowed one medical/personal administrative withdrawal and one college office administrative withdrawal, each for one or more courses in a single term. Repeated requests will not be considered. Submitting an appeal for retroactive withdrawal does not guarantee approval. College office appeals for CDM students must be submitted online via MyCDM.

Incomplete

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. CDM policy requires the student to initiate the request for incomplete grade before the end of the term in which the course is taken. Prior to submitting the incomplete request, the student must discuss the circumstances with the instructor. Students may initiate the incomplete request process in MyCDM.

- All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval.

- If approved, students are required to complete all remaining course requirement independently in consultation with the instructor by the deadline indicated on the incomplete request form.
- By default, an incomplete grade will automatically change to a grade of F after two quarters have elapsed (excluding summer) unless another grade is recorded by the instructor.
- An incomplete grade does NOT grant the student permission to attend the same course in a future quarter.

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:

Student Center, LPC, Suite #370

Phone number: (773)325.1677

Fax: (773)325.3720

TTY: (773)325.7296

Student Attitude

A professional and academic attitude is expected throughout this course. Measurable examples of non-academic or unprofessional attitude include but are not limited to: talking to others when the instructor is speaking, mocking another's opinion, cell phones ringing, emailing, texting or using the internet whether on a phone or computer. If any issues arise a student may be asked to leave the classroom. The professor will work with the Dean of Students Office to navigate such student issues.

Civil Discourse

DePaul University is a community that thrives on open discourse that challenges students, both intellectually and personally, to be Socially Responsible Leaders. It is the expectation that all dialogue in this course is civil and respectful of the dignity of each student. Any instances of disrespect or hostility can jeopardize a student's ability to be successful in the course. The professor will partner with the Dean of Students Office to assist in managing such issues.