NYU TANDON SCHOOL OF ENGINEERING

Department of Electrical & Computer Engineering
ECE–GY 6353 SHA: Internet Architecture & Protocols – Syllabus

Lecture: Monday 1:00 – 3:30 PM

Instructor: Prof. H. Jonathan Chao, chao@nyu.edu, Wework Fuhui Room 1036

Course Assistant: Michael Wang, michael.ichih.wang@gmail.com

Office hour: Prof. Chao: Monday 4:00-5:00 PM at Wework Fuhui Room 1036
Michael: Wednesday 4:00-5:00 PM via Zoom

Lab Instructor: Dr. Fraida Fund, ffund@nyu.edu

Overview: This course introduces basic networking technologies and protocols in a set of lectures and laboratory experiments. It covers the following topics:

- Internet Architecture and Protocols overview
- Data link layer protocols
- Network layer data plane
- Network layer control plane
- Transport layer protocol
- Application protocols
- Network security

Course Prerequisites: Students must have completed UY-EE 1363 (Principles of Communication Networks) or equivalent.

Textbook

Computer Networking: A Top Down Approach, 8th edition, by Jim Kurose and Keith Ross
Publisher: Pearson, ISBN-13: 9780135928790

- Every student is required to have his/her own copy of the textbook.

Laboratory Description: A telecommunication networks virtual laboratory, implemented in GENI (Global Environment for Network Innovations) environment, has been set up to provide the students with virtual networking and distributed systems such as user stations, Ethernet Local Area Networks (LANs), Ethernet hubs, Router, Bridges, etc.

Course Work: All students are required to access the NYU Classes website for course logistics and content: announcements, class notes, quizzes, solutions, etc. Note lab questions are assigned and graded by the lab instructor during each lab session.

In addition to lecture and lab assignments, there will be four sets of homework questions provided as study reference. Homework questions will not be graded, but solutions will be made available.

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Grading & Exams

- Midterm exam: 30%
- Final exam: 30%
- Labs: 20%
- 8 quizzes: 20%

Exam type: Open book with textbook, class notes, and course materials in NYU Classes.

Collaboration: Students are encouraged to discuss the labs, reports and homework with each other. However, except for team projects, your written submission, lab reports and exam papers, must be your own work. The first violation of this policy will result in zero point on that assignment and a reduction in your final grade (for example, from B+ to B). A second violation will result in an F grade. For additional information see school's Student Code of Conduct.

Equal educational opportunity and participation for students with disabilities

NYU Moses Center for Students with Disabilities provides comprehensive services and programs. Students with disabilities may get registered there for needed supports.

Class Schedule

Week	Lecture on Tuesdays	Lab topic	Lab report due
Week1 (1/25)	Lecture 1 – 5G Intro and Use Cases	Set up GENI account	2/1
Week2 (2/1)	Lecture 2 – IAP Overview	Linux, networking utilities	2/8
Week3 (2/8)	Lecture 3 – Link Layer and LANs (chap 6)	No lab assignment	
Week4 (2/22)	Lecture 4 – Link Layer and LANs (chap 6)	ABR, bridges, spanning tree	3/1
Week5 (3/1)	Lecture 5 – Network Layer: Data Plane (chap 4)	Routing – Part I	3/8
Week6 (3/8)	Lecture 6 – Network Layer: Control Plane (chap 5)	Routing – Part II	3/22
Week7 (3/15)	Midterm exam (1:00 – 3:30 PM)	(optional) Multicast	Not graded
Week8 (3/22)	Lecture 7 – Transport Layer (chap 3)	UDP, IP fragmentation	3/29
Week9 (3/29)	Lecture 8 – Transport Layer (chap 3)	TCP – Part I	4/12
Week10 (4/12)	Lecture 9 – Transport Layer (chap 3)	TCP – Part II	4/19
Week11 (4/19)	Lecture 10 – Application Layer (chap 2)	HTTP, DHCP, NTP, NAT	4/26
Week12 (4/25, Sun)	Lecture 11 – Network Security (chap 8)		
Week13 (4/26)	Lecture 12 – Network Security (chap 8)	Security	5/10
Week14 (5/10)	Lecture 13 – Final Exam Review		
Week15 (5/17)	Final exam (1:00 – 3:30 PM)		

Dates highlighted in yellow have a quiz at the beginning of the class for 10 minutes.

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Lab Instructions:

https://nyu.zoom.us/rec/share/-8k3O2zfn6XZcHMCCWp-vdods5A5-hMGPcfSsFOgx-4W_mlwa2UzO048vl9p2cXp.07E1w4IHg0d6L0UR?startTime=1599835868000

Access Passcode: 6977=xQH

The NYU Tandon School values an inclusive and equitable environment for all our students. I hope to foster a sense of community in this class and consider it a place where individuals of all backgrounds, beliefs, ethnicities, national origins, gender identities, sexual orientations, religious and political affiliations, and abilities will be treated with respect. It is my intent that all students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. If this standard is not being upheld, please feel free to speak with me.