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

Lecture: Saturday, 2:00 – 4:30pm US ET
Classroom: Pfizer Auditorium, Brooklyn Campus
Synchronous online session: [redacted]

Instructor: Dr. Z. John Zhao, email: zz342@nyu.edu
Office hours: Wednesday 6 – 7 PM, via Zoom [redacted]

Lab Instructor: Dr. Fraida Fund, Lab website:
email: ffund@nyu.edu, Office hours:

Course Assistant: [redacted]

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

- Overview of packet data networks and the Internet covering the Application, Transport, Network, and Data Link protocol layers.
- Network interconnection with Bridges (spanning tree algorithm), Routers, Gateways.
- Data link layer protocols: Ethernet, PPP, IEEE 802.11.
- The Internet Protocol Suite: IP, ARP, RARP, ICMP, IGMP, OSPF, BGP, UDP and TCP.
- Application protocols: FTP, SMTP, DNS, HTTP, DHCP, SNMP.
- Ping and traceroute programs.

Course Prerequisites: ECE-UY 1363 (Principles of Communication Networks) or equivalent.

Textbook: *"TCP/IP Essentials - A Lab Based Approach",* by S. Panwar, S. Mao, J. Ryoo, and Y. Li. Cambridge Press, ISBN-13: 978-0521601245.

Course Work: All students are required to access the NYU LMS (Brightspace) website for course logistics and content: announcements, homework, solutions, class notes, etc. Note lab reports are assigned and collected by the lab instructor from each registered lab session.

- 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.
- In addition to the lab assignments, weekly quiz will be assigned at the end of each lecture.
- There will be four sets of 'homework' questions distributed with solutions as study reference.

Grading & Exams: Grading is based on student's performance in the following course scales.

- Weekly class quizzes: 15%
- Labs: 30%
- Midterm exam: 25%
- Final exam: 30%

Exam type: Open-book with books, class notes, and course materials from NYU LMS.

If you are experiencing an illness or any other situation that might affect your academic performance in the class, please email Ms. Deanna Rayment, Coordinator of Student Advocacy, Compliance and Student Affairs, who can reach out to me on your behalf when warranted.

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.

Tentative Schedule

Fall 2021 School Week (Mon. - Sat.)	Saturday Lectures	Labs
Week1 (8/30 - **9/4**)	Lecture 1 – Intro., TCP/IP overview	No lab
Week2 (9/6 - **9/11**)	Lecture 2 – Linux, ARP, ICMP	
Week3 (9/13 - **9/18**)	Lecture 3 – Bridges and LANs	Lab0 - GENI intro.
Week4 (9/20 - **9/25**)	Lecture 4 – Static routing	Lab1
Week5 (9/27 - **10/2**)	Lecture 5 – Dynamic routing	Lab2
Week6 (10/4 - 10/9)	**Fall Break, No class on Oct. 9th**	Lab3
Week7 (10/11 - **10/16**)	Lecture 6 – UDP and its applications	Lab4
Week8 (10/18 - **10/23**)	**Saturday October 23rd, Midterm Exam**	No lab
Week9 (10/25 - **10/30**)	Lecture 7 – TCP introduction	
Week10 (11/1 - **11/6**)	Lecture 8 – TCP/IP applications	Lab5
Week11 (11/8 - **11/13**)	Lecture 9 – Multicast and real-time services	Lab6
Week12 (11/15 - **11/20**)	Lecture 10 – The Web, DHCP, NTP and NAT	Lab7
Week13 (11/22 - 11/27)	**Thanksgiving Recess, No class on Nov. 27th**	No lab
Week14 (11/29 - **12/4**)	Lecture 11 – Network management and security	Lab8
Week15 (12/6 - **12/11**)	Lecture 12 – Supplement topic: IPv6, …	Lab9
Week16 (12/13 - **12/18**)	**Saturday December 18th, Final Exam**	

Inclusion Statement: The NYU Tandon School values an inclusive and equitable environment for all our students. The course instructor hopes 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.