NYU TANDON SCHOOL OF ENGINEERING

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

Meeting: Tuesdays, 2:00 - 4:30 PM US EDT

Instructor: Shivendra S. Panwar, panwar@nyu.edu
Office hours via Zoom: Fridays 10am-11am, or meetings after class.

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

Head Teaching Assistant: Ufuk Usubutun, uu2001@nyu.edu
Office Hours: 370J PhD Workstation 921, Thursdays 10am-11am.

Course Graders: TBD

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

- Data link layer protocols: Ethernet, PPP, IEEE 802.11.
- The Internet Protocol Suite: IP, ARP, RARP, ICMP, IGMP, UDP and TCP.
- LAN Interconnection: Bridges (spanning tree algorithm), Routers, Gateways.
- Application protocols: FTP, SMTP, HTTP, DHCP, SNMP.
- Ping and traceroute programs.

Course Prerequisites: Students must have completed UY-EE 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-10: 052160124X or ISBN-13: 978-0521601245.

- This book will also be used as a reference book for the labs.
- Each student should have his/her own copy of the textbook. You can access the textbook online with your NYU account via NYU Libraries.

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 Brightspace website for course logistics and content: announcements, class notes, after-lecture quizzes, solutions, etc. In addition to lecture and lab assignments, there will be ten 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: 25%
- Final exam: 25%
- Labs: 40%
- Quizzes: 10%

Exam type: Open book

Collaboration: Students are encouraged to discuss the labs, reports and homework with each other. However, your written submission, lab reports and exam papers, must be your own work. The first violation of this policy will result in zero points 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. – Sun.)	Lectures	Lab Sections
Week1 (**8/30**-9/5)	No class	No Lab
Week2 (**9/6**-9/12)	**Monday Sept. 6th, Labor Day, No classes**	No Lab
	Tue. Sept. 7th, Lecture 1 - TCP/IP overview	
Week3 (**9/13**-9/19)	Lecture 2 – Linux, ARP, ICMP	Lab 0
Week4 (**9/20**-9/26)	Lecture 3 – Bridges and LANs	Lab 1
Week5 (**9/27**-10/3)	Lecture 4 – Static Routing	Lab 2
Week6 (**10/4**-10/10)	Lecture 5 – Dynamic Routing	Lab 3
Week7 (**10/11**-10/17)	No class (Monday classes will run instead)	Lab 4
Week8 (**10/18**-10/24)	Lecture 6 - UDP & applications. **Review**	No Lab
Week9 (**10/25**-10/31)	**Midterm Exam: 10/26**	No Lab
Week10 (**11/1**-11/7)	Lecture 7 – TCP introduction	Lab 5
Week11 (**11/8**-11/14)	Lecture 8 – TCP applications	Lab 6
Week12 (**11/15**-11/21)	Lecture 9 - Multicast, RT Applications	Lab 7
Week13 (**11/22**-11/28)	Lecture 10 - HTTP, DHCP, NAT, …	Lab 8
Week14 (**11/29**-12/5)	Lecture 11 - SNMP, Network Security	
Week15 (**12/6**-12/12)	Lecture 12 - Supplementary topics: 5G, …	Lab 9
Week16 (**12/13**-12/20) & Exam week	**Review: 12/14**	No Lab
	Final Exam: 12/21	

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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.