

Computer Networks-CS307

Fall 2018

Course Outline

Instructor: Ishrat Fatima

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Credit Hours: 3

email:

Office Hours: Monday & Wednesday: 3pm to 4pm

Objective of the Course

The objective of this course is to introduce the principles and practices of Computer Networking, specifically focusing on the Internet. By the end of the course, students should be able to:

- Understand the anatomy of the Internet
- Understand fundamental layered structure, understand common offered layered services, examine protocols and algorithms used to operate the network
- Create foundation for more advanced courses in computer networks
- Be able to write networking application with Socket programming in C/C++
- Design and test networks on network designing tools
- Simulate existing protocols along with designing new protocols in network simulators

Text Book

Computer Networking: A Top Down approach featuring the Internet, 6th Edition
Computer Networks (Reference Book)

James F. Kurose and Keith W. Ross
Andrew Tanenbaum

Pre-requisites: Data Structures, Operating System

Course Outline

Module	No. Of Lectures	Reference Text	Book Sections
Introduction and Overview Basic Concepts of Networking Circuit switching Packet switching Multiplexing (TDM, FDM) Throughput and delay Internet Architecture Protocol Layering	3	Chapter 1	1.1--1.5
Application Layer	2	Chapter 2	2.1-2.3, 2.4.1, 2.5.1,

Network application architectures HTTP, FTP, Email, DNS P2P applications		2.6.1
Transport Layer 7 Multiplexing in UDP and TCP Connectionless Transport: UDP Reliable data transfer and TCP Congestion avoidance and control	Chapter 3	3.1-3.8
Network Layer 8 The Internet Protocol Routing algorithms Routing protocols Broadcasting and Multicasting	Chapter 4	4.1 – 4.7
Link Layer and MAC Layer Functionalities 6 Ethernet, CSMA/CD, FDM/TDM (revisit this as some of it is in earlier chapters), VLANs and ARP. Link layer addressing Bridges and Hubs LAN Technologies	Chapter 5	5.1 - 5.6
Advanced Topics Introduction to Internet of Things Introduction to Multimedia Networking Introduction to Network Security and Final	Supplement text [Subject to the availability of the time]	

Evaluation

Assignments	10%
Quizzes	15%
Mid Exams	25%
Final Exam	50%
Total:	100 %

Course Policies

- Course outline may change 10-20% as we proceed in the semester
- Important: Though weightages of different course components are the same, grade assigning policy (or threshold) of other sections may or may not be the same.
- Assignment deadlines for both class and lab are hard.
- NO Cell Phone usage in class, they must be turned off at all times.
- Quizzes will be unannounced. We may have any number of quizzes at any time during the semester.

- There will be no retake of quizzes or exams. Special consideration may be given only for mid or final exam for an emergency on per case basis. In approved circumstances, percentage of mid will be awarded for final or vice versa as per department's policy.
- Integrity in the assignments/quizzes is expected; otherwise result would be an F grade in the course or may be the case is forwarded to Disciplinary committee.
- The lectures will be of 1.5 hours duration + there will be one 3 hours lab/week.
- Attendance MUST be ensured according to the University policy to avoid disqualification.