2110472 Computer Networks

Instructors

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Text Books

- K. Ross and J. Kurose, *Computer networking: a top-down approach featuring the Internet*, 2nd Edition, Addison Wesley, 2003.

Course Outline

Week	Topics
1	Introduction to Computer Network - Overview and Basic Terminologies. - Internet Architecture and History.
2	Application Layers - Basic Functionalities. - HTTP Protocol. - FTP Protocol. - SMTP and other related protocols.
3	Socket Programming - Basic operations. - Client-Side Socket. - Server-Side Socket.
4	Network Security - Security Overview. - Basic Cryptography and its Applications. - Firewall and Other Security Infrastructure.
5	Trends in Network-Centric Applications - Multi-Tier Architecture. - Server-Side Applications. - Middleware System. - Message Format and Message Delivery. - Case Studies.
6	Transport Layer I - Multiplexing and demultiplexing. - Connectionless Transport: UDP. - Principles of Reliable Data Transfer. - Connection-Oriented Transport: TCP.
7	Transport Layer II - Principles of Congestion Control. - TCP Congestion Control.
8	Network Layer - Network Service Models. - Routing Principles. - The Internet Protocol (IP).
9	IPv6 - IPv6 Features. - Transitioning from IPv4 to IPv6.
10	Multicast Routing - Internet Multicast Abstraction. - IGMP. - Multicast Routing.
11	Fundamental of data communication -Fourier analysis. -Signal and bandwidth. -Information theory.
12	Telecommunication system -Transmission media. -Telephone network.

	-ISDN. -Broadband and high speed network.
13	Wireless network -The Electromagnetic Spectrum. -Radio and microwave transmission. -Infrared and lightwave transmission.
14	Data link layer -Flow control. -Error control. -Example data link protocol.
15	Medium access protocol -Channel allocation problem. -Multiple access protocol. -LAN protocols. -Cellular networks. -Satellite networks.

Grading Policy

- Exam I 25 %
- Exam II 25 %
- Exam III 25 %
- Project 25 %