**Syllabus CS 521, Spring 2015**

**Stevens Institute of Technology**

**Dr Moshiur Rahman**

 Office Room No. :

 Office Phone : 732 420 3055 (O) /732 533 9805 (Cell)

 Email : mrahman@stevens.edu

Kurose and Ross, "Computer Networking: A Top-Down Approach", 6th Edition, ISBN-13: 9780132856201

The objective of this course is to provide a unified view of data and computer communications, emphasizing on the application and design of TCP/IP networking. In this course, students gain the knowledge and skills required to analyze and develop solutions to solve networking problems of modern data communications of TCP/IP based systems, services and related tools and technologies

Within this scope, the aspect of broadband high speed access technologies, LAN, WLAN, WAN, DNS, Cellular, VoIP, Cable Telephony and related evolving technologies and protocols are covered. Upon successful completion of the course, students will have gained a deep understanding of the broad concepts and principles of designing and implementing modern TCP/IP supported computer data networking applications.

Home Works:

HW will include the following Programming assignments, in addition to the selected problems given at the end of each chapter :

1. Assignment 1:Socekt Programming (Java)
2. Assignment 2 : A Mail User Agent in Java (Chapter 2)
3. Assignment 5:Implementing a Reliable Transport Protocol (Chapter 3)
4. Assignment 6: Implementing a Distributed, Asynchronous Distance Vector Routing Algorithm (Chapter 4)
5. Assignment 8: Simulating SNMP

Weekly topics

|  |  |  |
| --- | --- | --- |
| Week | Topics | Assignment/HW |
| Week 1 | Computer Networks, the Internet, core, edge, IETF |  |
| Week 2 | Application layer: Web, HTTP, FTP, SMTP, DNS | HW 1 given |
| Week 3 | P2P, TCP and socket programming with TCP | HW 1 due, HW 2 given |
| Week 4 | Socket programming with UDP |  |
| Week 5 | Transport layer: Reliable data transfer, GBN, SR | HW 2 due, HW 3 given |
| Week 6 | Connection-oriented Transport: TCP |  |
| Week 7 | TCP congestion control | HW 3 due, HW 4 given |
| Week 8 | Network Layer: IP |  |
| Week 9 | IP addressing and sub-netting | HW 4 due, HW 5 given |
| Week 10 | IP routing algorithm | HW 5 due, HW 6 given |
| Week 11 | Wireless and mobile networks |  |
| Week 12 | Multimedia networking | HW 6 due |
| Week 13 | Network management | HW 7 given |
| **Week 14** | **Final Exam** | HW 7 due |

Grading policy:

Homework assignment 25%   
Midterm 35%   
Final 40%

Homework   
From lecture notes and text book. No late homework.   
  
Exams   
  
Both midterm and final exams are closed-book.