

CS3251 Computer Networking I

Course Objective: To study the basic concepts of communication networks, protocols and their performance and to use sockets programming to implement computer communications protocols. Hands on exercises include using a protocol sniffer to investigate how self written applications and the internet actually work.

Prerequisites:

CS 2200 - Systems and Networks

Required Books:

- 1) J. F. Kurose, K. W. Ross, *Computer Networking, A Top-Down Approach Featuring the Internet*, 5th Ed, Addison-Wesley.
- 2) Donahoo and Calvert, *TCP/IP Sockets in C: Practical Guide for Programmers*, Morgan Kaufman (Elsevier), 2001, ISBN 1-55860-826-5)

OUTLINE

Introduction

-Computer Networks

Application Layer

-Hypertext Transfer Protocol (HTTP) and others

- Sockets application programming interface

Transport Layer

-Transport Control Protocol

-Flow Control and Congestion Control

Network layer

-IP addresses and forwarding

-Routing

Data Link Layer

-Framing, Error Detection and Recovery

-Medium Access Protocol

Physical Layer

- Digital Data Communication Techniques

- Transmission Media