

Computer Networking

Course Outline

Course Information

- CSE 323/395: Computer Networking (Theory)
 - Credit: 3 (3 hours lectures/week)
- CSE 324/396: Computer Networking Lab
 - Credit: 1.5 (3 hours lab session/week)
- Course Teacher
 - Dr. Farida Chowdhury
 - Associate Professor, Dept of CSE, SUST
 - Office# 310, IICT Building
 - Email: deeba.bd@gmail.com

Course Content (Theory)

- **Introduction:** Data communications, Networks, Network Types, Internet, Protocols and Standards. Introduction to Computer Networks, Network Goals, Applications of Networks, Network Structure, Network Architectures, The ARPANET.
- **Network Model:** Protocol layering, TCP/IP Protocol suite, the OSI Model.
- **Network Layer:** Introduction, Network Layer Protocols, Routing, Routers: Anatomy of a router, IP Addressing, Subnetting IP Networks, Internetworking, Intra-domain Routing, Inter-domain Routing, Routing Protocols, RIP, OSPF, BGP, NAT.
- **Transport Layer:** Multiplexing/De-multiplexing, Connection-less Transport (UDP), Principles of Reliable Data transfer, Connection-oriented Transport (TCP), TCP Congestion Control.
- **Link Layer:** Ethernet.
- **Application Layer:** Principles of Network Applications, the Web and HTTP, FTP, Email, SMTP, DNS, Socket Programming.
- **Wireless and Mobile Networking:** Wireless Networking: Issues and Trends, Wireless Physical Layer Concepts, Wireless Cellular Networks, Mobile IP, Ad Hoc Networks.
- **Security:** Attacks

Assessment

| Examination | |
|----------------------------|-------------|
| 2 x Mid-term Examination | 15% |
| 2 x Class Tests | 5% |
| Class Attendance | 10% |
| Semester Final Examination | 70% |
| Total | 100% |

*It may change

Textbooks

1. Data Communications and Networking – Behrouz A. Forouzan.
2. Computer Networking: A Top-down Approach – J.F. Kurose and K.W. Ross.
3. Computer Networks: A Systems Approach – Peterson and Davie.
4. Computer Networks – Tanenbaum and Wetherall.
5. CCNA Course Material

Computer Networking Lab

List of Experiments

- *Socket Programming*: Socket Programming
- *Experiments with Wireshark*: HTTP, SMTP, DNS, TCP, UDP etc.
- *Packet Tracer*: Configuring Router, Network Design, Experiments with Subnetting etc.