CS 540
Advanced Computer Networks
Fall 2015

INSTRUCTOR: Professor B. Gupta

Office: Faner 3044
Office Hours: M W F 1 p.m. – 3 p.m.
Telephone: 453-7194
Email: bidyut@cs.siu.edu

Prerequisites: CS 440 with a grade of C or better, or consent from the instructor

Course Outline

Peer-to-Peer (P2P) Networks
- DHT-based P2P networks
- Hybrid P2P networks
- Hierarchical P2P networks

Multicast Routing
- DVMRP
- PIM/DM
- PIM/SM

High Speed Data Communication
- Data Compression Techniques
  - Huffman encoding
  - Run length encoding
  - Arithmetic coding
  - String matching Algorithms

Routing in Global Internet
- Interior Gateway Protocols
- Exterior Gateway Protocols

Routing Protocols in Mobile Ad-hoc Networks
- AODV

Queuing Theory
- M/M/1 queue;
- State-dependent queues – M/M/N/N queue etc.

Queuing Networks (if time permits)
- Open Queuing Networks
- Closed Queuing Networks
No text book will be followed. Reading materials will be given to students at appropriate times.

Some recommended reading:

4. Telecommunication Networks, Protocols, Modeling and Analysis By Mischa Schwartz, Addison Wesley

*Grading Policy:*

There will be two exams, each will carry 30% of the total points. One lab will have 20% of the total points. There will be term paper presentation. A term paper will carry 20% points, out of which 10% for submitting the hard copy of the report and 10% for presentation.

*Note: These percentages are tentative; there may be significant changes.*

• **TOPIC OF THE TERM PAPER IS P2P NETWORK. NO OTHER TOPIC WILL BE CONSIDERED.**

   Grade A ≥ 90%
   Grade B ≥ 80% and < 90%
   Grade C ≥ 70% and < 80%