

EECS 863
Course Outline

1. Theoretical Background: Markov Processes
 - a) Obtain understanding of key assumptions
 - b) Learn terminology of Markov chains
 - c) Develop techniques to solve Markov systems
2. Application of Markov Processes to Queueing and Blocking Systems
 - a) Blocking analysis for circuit switched systems
 - b) Delay analysis of queueing systems with Markov service process
 - c) Little's Result
3. Application of Markov Process to systems with arbitrary service process
 - a) M/G/1 analysis
 - b) Develop the concept of Residual Life
 - c) Analyze M/G/1 systems with vacations
 - d) Analyze Priority Systems
4. Analysis of Networks of Queues
 - a) Analysis of Open Networks and application to the design of networks: capacity assignment
 - c) Analysis of closed networks and application to analysis of window flow control techniques
5. Analysis of Polling Networks
 - a) General Analysis
 - b) Application of general analysis to:
 - a) Token ring
 - b) Token bus
 - c) FDDI
6. Analysis of Random Access Techniques
 - a) Definition of types of random access systems
 - b) Throughput Analysis
 - c) Delay Analysis
7. Topological Design of Networks.
8. Design of Routing Techniques of Networks.
9. Simulation of Communication Networks