

OPER 472

Course outline

| Topics Covered | Contact Hours | Week number |
|------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| Definition of stochastic processes. | 3 | 1 |
| Finite Markov chains. One step and multi-steps transition probability matrices. Chapman-Kolmogorov equations | 15 | 2, 3,4,5,6 |
| State classification. Asymptotic Behavior of Markov Chains Long run distribution of Markov chains. | 3 | 7 |
| Continuous-time Markov processes (Birth-and-death processes, Poisson process). | 6 | 8,9 |
| Queuing theory and models. Cumulative diagrams of queues. Performance measures. | 3 | 10 |
| Basic Markovian queuing models (single server queue, multi-server queue, finite capacity queues). Some Non-Markovian queues. | 15 | 11,12,13,14,15 |