

MAJOR BASED ELECTIVE - I - STOCHASTIC PROCESS

Unit I:

Generating function - Laplace transforms – Laplace transforms of a probability distribution function Difference equations - Differential difference equations – Matrix analysis.

Unit II

Stochastic process – notion – specification – stationary process – Markov chains – Definition and examples – Higher transition probabilities.

Unit III

Classification of states and chains – Determination of Higher transition probabilities – stability of Markov system – limiting behavior.

Unit IV

Poisson process and related distributions- generalization of Poisson process – Birth and death process.

Unit V

Stochastic process in queuing and reliability – queuing systems, m/m/1 models – Birth and death process in queuing theory – Mutti channel models – Bulk Queues.

Scope and treatment as in “Stochastic Process” by J.Medhi, Chapters 1, 2, 3 (omitting 3.6., 3.7. 3.8) , 4 (omitting 4.5.and 4.6) and Chapter 10 (omitting 10.6, 10.7)

Books for Reference:

- 1 First course in Stochastic Process by Samuel Kartin.
- 2 Stochastic Process by Srinivasan and Metha (TATA Mc Graw Hill)
- 3 Elements of Applied Stochastic Process by V.Narayanan.