MODULE - I

Syllabus : Definitions of probability, joint, conditional, and total probability, Bayes' theorem, independence of events, binary symmetric communication channel analysis using Bayes' theorem.

MODULE - II

Syllabus : Continuous, discrete, and mixed random variables, probability density function, probability distribution function, and probability mass function, properties of PDFand CDF. Special distributions - Binomial, Poisson, Uniform, Gaussian and Rayleigh Distributions Mean, variance and moments of random variables.

MODULE - III

Chapter 3 : Operations on One Random Variable

3-1 to 3-47

Syllabus : Function of a random variable and their distribution and density functions. Expectation, variance, moments, and characteristic function of random variable. Transformation of a random variable, Markov and Chebyshev inequality, characteristic functions, moment theorem.

MODULE - IV

Syllabus : Pairs of random variables, joint CDF and joint PDF. One function of two random variables; joint moments, covariance and correlation independent, uncorrelated and orthogonal random variables. Central limit theorem and its significance.

MODULE - V

Syllabus : Definitions, statistics of stochastic processes, nth order distribution, second-order properties : mean and autocorrelation, Poisson process, normal processes, SSS, WSS. Mean and correlation ergodic processes, transmission of WSS through LTI system, introduction to Markov process.

MODULE - VI

Syllabus : Regression and model building, Simple linear regression, Multiple linear regression, Least square estimation of the coefficients, Residual calculations.

Applications of simple linear regression in prediction of new observations.

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