

Unit.No	Unit Name	Resource	Topics
1	Probability		1 Introduction to sets, fields, events
			2 Introduction to probability, Axiomatic definition of probability
			3 Joint, Conditional and Total Probabilities
			4 Bayes theorem and its applications
			5 Bernoulli trials
			6 Binomial theorem
2	Random Variable		1 Discrete random variables
			2 probability mass function
			3 probability distribution function
			4 example random variables and distributions
			5 Continuous random variables
			6 probability density function
3	Basic Statistics		7 probability distribution function One dimensional Random variable
			8 Problems on one dimensional RV, Mean variance and moments
			1 Measures of Central tendency
			2 Moments, skewness and Kurtosis
			3 Probability distributions: Binomial, Poisson, Uniform, exponential and Normal
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4	Pairs of Random Variables		5 evaluation of statistical parameters for different distributions
			1 Two Random Variables, Pairs of Discrete Random Variables
			2 The Joint cdf of X and Y, The Joint pdf of Two Continuous Random Variables
			3 Independence of Two Random Variables, Joint Moments and Expected Values of a Function of Two Random Variables
			4 Conditional Probability and Conditional Expectation
			5 Functions of Two Random Variables Pairs of Jointly Gaussian Random Variables
5	Random Processes		6 Generating Independent Gaussian Random Variables
			1 Basic Definitions and Important Random Processes
			2 Useful classifications of Random Processes
			3 Random Sequences and Linear systems
			4 Mean and covariance functions
			5 Wide Sense Stationary Random Sequences, Ergodicity
6	Small samples and Regression		6 Transmission of random process through LTI. Power spectral density
			1 Central Limit theorem and its significance
			2 Central Limit theorem and examples
			3 Some sampling distributions like chi-square
			4 Some sampling distributions like t, F
			5 Simple linear regression model

Unit.No	Unit Name	Resource	Topics
		6	Least square estimators, polynomial regression, Correlation