



Sample Brief Course Description

Course title	Probability and Random Processes
Course code	ECE 204
College	Engineering
Department / Program	Electrical Engineering / Communications Engineering
Year/ Level	5 th year / 9 th Level
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others b. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	3
Contact Hours	(LT:3, LB:0, TR:0)
Pre-requisites (if any)	MATH 265-2
Co-requisites (if any)	---
Course description	Review of basics of probability, moment generating and characteristic function, bivariate Random Variables (RV), joint and marginal distributions, multiple RVs, transformations of multiple RVs, general discrete- and continuous random processes, stationarity and ergodicity, Gaussian and Poisson random processes, auto- and cross-correlation functions, power spectral densities, and linear systems with random inputs.



Course Main Objectives	<ol style="list-style-type: none">1. To familiarize with the algebra of random variables.2. To explain the characterization of random processes in both time and frequency domains3. To highlight the applications of multiple random variables and random processes in communication systems.
Learning Outcomes	<p>1. Knowledge and Understanding:</p> <ol style="list-style-type: none">1.1 Understand essential facts, concepts, principles and theories related to probability theory and random processes.1.2 Explain the concept of random events, random variables, and major distributions of random variables. <p>2. Skills:</p> <ol style="list-style-type: none">2.1 Characterize probability models, function of random variables based on single & multiples random variables. And characterize random processes (correlation functions and PSD) and their applications.2.2 Calculate the expected values and moments of random variables. <p>3. Values:</p> <p>-</p>
References	<p>Required Textbooks:</p> <p>"Probability, Random Variables, and Random Signal Principles", P. Z. Peebles and B. Shi., McGraw-Hill, 2015.</p>