



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

ELECTRONICS AND COMMUNICATION ENGINEERING

ASSIGNMENT

Course Name	:	PROBABILITY THEORY AND STOCHASTIC PROCESSES
Course Code	:	A30405
Class	:	II B. Tech I Semester
Branch	:	Electronics and Communication Engineering
Year	:	2016 – 2017
Course Faculty	:	Ms G.Mary swarna latha, Assistant Professor, Mr.G.Anil Kumar Reddy , Assistant Professor , Department of ECE

OBJECTIVES

To provide mathematical background and sufficient experience so that the student can read, write, and understand sentences in the language of probability theory, as well as solve probabilistic problems in signal processing and Communication Engineering. This subject introduces students to the basic methodology of “probabilistic thinking” and to apply it to problems. And to understand basic concepts of probability theory and random variables, how to deal with multiple random variables, Conditional probability and conditional expectation, joint distribution and independence, mean square estimation.

I. ASSIGNMENT - I

S. No	Questions	Blooms Taxonomy Level	Course Outcomes
ASSIGNMENT-I UNIT-I PROBABILITY AND RANDOM VARIABLE			
1	Define probability?	Remember	1
2	Explain probability with axioms?	Understand	1
3	Define conditional probability?	Remember	1
4	Define joint probability?	Remember	1
5	Define total probability?	Remember	1
6	Define bayes theorem?	Remember	1
7	Explain how probability can be considered as relative frequency?	Understand	1
8	Define a random variable?	Remember	1
9	Define a sample space?	Remember	1

S. No	Questions	Blooms Taxonomy Level	Course Outcomes
10	Define multiplication theorem?	Remember	1
ASSIGNMENT – II UNIT-II DISTRIBUTION & DENSITY FUNCTIONS AND OPERATION ON ONE RANDOM VARIABLE – EXPECTATIONS			
1	Define probability density function?	Remember	2
2	Define probability distribution function?	Remember	2
3	Write any two properties of density function?	Remember	2
4	Write any two properties of distribution function?	Remember	2
5	Define uniform density function?	Remember	2
6	Define uniform distribution function?	Remember	2
7	Define Gaussian density function?	Remember	2
8	Define Gaussian distribution function?	Remember	2
9	Define Poisson distribution function	Remember	2
10	Define mean and mean square values?	Remember	3
ASSIGNMENT – III UNIT-III MULTIPLE RANDOM VARIABLES AND OPERATIONS			
1	Define probability density function for two random variables?	Remember	2
2	Define probability distribution function for two random variables?	Remember	2
3	Give properties of probability density function?	Remember	2
4	Give properties of probability distribution function?	Remember	2
5	Define mean for two random variables?	Remember	4
6	Define mean square value for two random variables?	Remember	4
7	Define skew for two random variables?	Remember	4
8	Define skewness for two random variables?	Remember	4
9	Define correlation?	Remember	5
10	Define covariance?	Remember	5
ASSIGNMENT – IV UNIT-IV STOCHASTIC PROCESSES – TEMPORAL CHARACTERISTICS			
1	Define random process?	Remember	6
2	Define ergodicity?	Remember	6

S. No	Questions	Blooms Taxonomy Level	Course Outcomes
3	Define mean ergodic process?	Remember	6
4	Define correlation ergodic process?	Remember	6
5	Define first order stationary process?	Remember	6
6	Define second order stationary process?	Remember	6
7	Define wide sense stationary random process?	Remember	6
8	Define strict sense stationary random process?	Remember	6
9	Define auto correlation function of a random process?	Remember	6
10	Define cross correlation function of a random process?	Remember	6
ASSIGNMENT – V UNIT-V			
STOCHASTIC PROCESSES – SPECTRAL CHARACTERISTICS			
1	Define wiener khinchine relations	Remember	7
2	State any two properties of cross-power density spectrum.	Remember	7
3	Define cross –spectral density and its examples.	Remember	7
4	State any two uses of spectral density. .	Remember	7
5	Define Spectral analysis?	Remember	7
6	Define Spectral density?	Remember	7
7	State any two properties of an auto correlation function.	Remember	5
8	Define cross correlation and its properties.	Remember	5
9	Prove that $R_{XY}(t) = R_{YX}(-t)$	Remember	5
10	State any two properties of cross correlation.	Remember	5

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