ENGINEERING MATHEMATICS IV

MAT 2256

IV SEMESTER

COURSE OUTCOMES(COS)

CO1:Discuss the relevance of probability in engineering problems.
CO2: Explain the concepts of random variable and probability distribution.
CO3: Identify situations where different discrete probability distributions can be applied and use suitable continuous distributions to various situations.
CO4 :Understand the measures of probability distributions, point estimation and interval estimation.
CO5: Understand and apply the concept of forming a hypothesis and testing it.

L0	Introduction to the course, Definition and Axioms of probability	CO1
L1	Conditional probability	CO1
L2	Independent events	CO1
L3	Total probability	CO1
L4	Baye's Theorem with proof	CO1
L5	Tutorial	CO1
L6	One dimensional random variables	CO2
L7	Mean and Variance of one dimensional random variables, Chebyshev's inequality with proof	CO2
L8	Tutorial	CO2
L9	Two dimensional Random variables	CO2
L 10	Mean and variance of discrete and continuous random variables	CO2
L 11	Covariance and Correlation Co-efficient	CO2
L12	Tutorial	CO2
L 13	Binomial distribution, mean and variance	CO3
L 14	Poisson's distribution - mean and variance, Uniform distribution - mean and variance	CO3

L 15	Tutorials	CO3
L 16	Normal distribution, mean and variance	CO3
L 17	Problems on Normal distribution	CO3
L 18	Gamma, Exponential and Chi- Square Distribution -- mean and variance	CO3
L 19	Tutorials	CO3
L 20	Functions of one dimensional random variables	CO4
L 21	Functions of two dimensional random variables	CO4
L 22	F and t- distribution (Definition only) and Problems	CO4
L 23	Moment generating functions (mgf)	CO4
L 24	Problems related to mgf	CO4
L 25	Tutorials	CO4
L 26	Introduction to Sampling Theory	CO4
L 27	Central limit theorem	CO4
L 28	Problems on Central limit theorem	CO4
L 29	Point estimation	CO4
L 30	Maximum Likelyhood estimator (MLE)	CO4
L 31	Tutorial	CO4
L 32	Significance level, critical region and power of the test	CO5
L 33	Testing of Hypothesis	CO5
L 34	Problems on testing of Hypothesis	CO5
L 35	Tutorial	CO5
L 36	Chi-square test	CO5
L 37	Best critical region, Neyman-Pearson lemma	CO5
L 38	Tutorial	CO5

References:

Meyer P.L. - Introduction to probability and statistical applications, 2nd edition, 1980, Oxford and IBH Publishing, Delhi.

Miller, Freund and Johnson - Probability and Statistics for Engineers, 8th edn, PHI, 2011.

Hogg and Craig, Introduction to Mathematical Statistics, 6th edition, Pearson education, New Dehli, 2012.
Ross Sheldon M, Introduction to Probability and Statistics for Engineers and Scientists, Elseveir, 2010.