Course
No.
Course Name L-T-PCredits
Year of
Introduction

09EE6111 **Applied Mathematics** 4-0-0
2015
Course Objective
To enable the students to apply probability and reliability theory in various electrical engineering problems
Syllabus
Probability distributions – binomial, poisson ,normal , uniform , exponential, Estimation, Correlations and regressions, Design of experiments, Stochastic Process: Examples - Specifications
of Stochastic Process - stationary process. Reliability: series configuration - parallel configuration.
Expected outcome
Real time systems have different levels of uncertainty. Analysis of such systems using probabilistic and stochastic methods will be essential to yield meaningful results. This course will adequately equip the students to analyze real systems using probability and reliability theory.
REFERENCES:
1. Miller & Freud's- Probability and statistics in Engineering -6th edition, Pearson edition.
2. Schupta and V.K.Kapoor Fundamentals of statistics(Sultan Chand)
3. J. Medhitch - Stochastic Process- 2nd edition New age international publication-
4. Martin Shooman- Mc Graw Hill-Probabilistic reliability An engineering Approach.
5. T.Veerarajan-Probability ,statistics and random process,Tata Mc Graw Hill.
Course Plan
Module Contents Hours Sem.Exam
Marks %
I Probability: Probability distributions – Binomial –Poisson – Normal – Uniform – Exponential – Weibull -Log normal – Beta – Gama - Joint distributions.Samplingdistributions: Sampling distributions of mean andvariance – Estimation - Point animation – Interval Estimation - Test of hypothesis.14 25
6 /66
II Curve fitting: Method of least squares – Normal equations - Fitting of straight line - Fitting of second degree curve - Correlations and regressions – Curvilinear regression - Multiple regression & multiple correlation.
7 25
FIRST INTERNAL EXAMINATION
II Design of experiments: Analysis of variance – statistical principle of experimentation - Basic designs – Completely randomized design- Randomized block design.
7
III Stochastic Process: Examples - Specifications ofStochastic Process - stationary process. Markov chains: Definition and examples -Transition matrix - order of Markov chain - higher transition probabilities - Generalization of independent Bernoulli trails, Markov – Bernoulli chain – Correlated random walk - Classification of states and chains -
Determination of higher transition probabilities – Stability of Markov system.

14 25
SECOND INTERNAL EXAMINATION
IV Reliability: series configuration - Parallel configuration -An r-out- of -n configuration - Failure time distributions -Exponential model in reliability - Exponential model in life testing – Weibull model in life testing
14 25
END SEMESTER EXAMINATION