Course Number and Name
BMA 401&Applied Probability And Statistics

Credits and Contact Hours
4&75

Course Coordinator's Name
Mrs.Subhashini

Text Books and References

Text Books:
1. S.C.GuptaandV.K.Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand and Sons, New Delhi, 2003. [Units I & II]
2. S.C. Gupta and V.K. Kapoor, "Applied Statistics". Sultan Chand and Sons, New Delhi 2004 [Units IV & V]
3. TirupathiR.Chandrupatta. "Quality and Reliability in Engineering". Book Vistas, New Delhi. [Unit III]

References:
1. Miller U and Frieund JE. "Probability and Statistics for Engineers", PHI 1999
2. Douglas C.Montgomory and George C.Runger. "Applied Statistics and Probability for Engineers" 5thEdn. 2010. Wiley India Pvt Ltd. New Delhi.
3. Douglas C.Montgomory. "Design and Analysis of Experiments" 7thEdn. 2012. Wiley India Pvt Ltd. New Delhi.
4. Albert Leon Garcia, "Probability and Random Processes for Electrical Engineering". 2ndEdn. Pearson Education, Chennai-600 113.

Course Description

To impart knowledge about important concepts of Probability and Reliability, tools in SQC to solve problems in Electrical & Electronics Engineering.

Prerequisites	Co-requisites
Mathematics-II	Nil

required, elective, or selected elective (as per Table 5-1)
Required

Course Outcomes (COs)

CO1: Solve Engineering problems in Electrical & Electronic Engineering by making use of Probability, Reliability and Hazard functions.
CO2: Use control charts to find tolerance limits in electric circuits.
CO3: How Design of Experiments are to be analyzed.

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	H	H	L	L	H	M	M	L	L	L	L	L
CO2	H	H	L	L	M	M	M	L	L	L	L	L
CO3	H	H	L	L	H	H	M	L	L	L	L	L

List of Topics Covered

UNIT I   PROBABILITY AND RANDOM VARIABLES   9+6

Probability concepts, Random variables, MGF, Binomial, Poisson, Geometric, Normal, Uniform, and Exponential Distributions.

UNITII   TWO DIMENSIONAL RANDOM VARIABLES   9+6

Marginal and Conditional distributions, covariance, correlation, regression and transformation of random variables, application of central limit theorem.

UNIT III   RELIABILITY ENGINEERING   9+6

Concepts of Reliability, Hazard function, series and parallel systems, reliability and availability of Markov systems, maintainability, preventive maintenance.

UNIT IV   CONTROL CHARTS   9+6

Control charts for measurements and attributes- $\overline{X}$ Chart , R-Chart ,np-chart, p-chart, Control Charts for fixed sample size and variable sample size. Stability and Capability, Seven Quality Control tools and its applications.

UNIT V   DESIGN OF EXPERIMENTS   9+6

Completely Randomised Design, Randomised Block Design and Latin Square Design. Factorial Experiment- 2^2 Experiment.