20BSM205E					Probability and Statistics					
Teaching Scheme					**Examination Scheme**					
L	**T**	**P**	**C**	**Hrs. / Week**	Theory			Practical		**Total Marks**
					MS	**ES**	**IA**	**LW**	**LE/Viva**	
3	**1**	**0**	**4**	**4**	25	50	25	--	--	100

COURSE OBJECTIVES

➢ To be able to understand the concept of probability and probability distribution function.
➢ To be able to obtain the statistical measure of various real world problem.
➢ To be able to analyze the probability distribution in view of various problems of engineering.
➢ To be able study various central tendency, curve fitting and correlation.

UNIT 1 PROBABILITY   08 Hrs.

Sample space and events, Axioms of Probability function, Properties of probability function, Conditional Probability, Total Probability Baye's Theorem

UNIT 2 RANDOM VARIABLES   12 Hrs.

Random variables. Discrete random variable, continuous random variable, Expectation, Variance, Moment generating function,

UNIT 3 DISTRIBUTION FUNCTIONS   10 Hrs.

Discrete probability distribution functions, Binomial distribution, Negative binomial distribution, Poisson distribution, Continuous probability density function, Normal distribution, t, Exponential, χ^2 and F distributions, Joint distributions and their Mean, Variance and Covariance.

UNIT 4 CURVE FITTING AND REGRESSION   10 Hrs.

Measure of central tendency, Curve fitting, Correlation, simple correlation, partial correlation, regression analysis,

                                                                                       40 Hrs.

COURSE OUTCOMES
On completion of the course, student will be able to
CO1 – Identify the use of probability engineering aspects.
CO2 – Understand the concept of probability and statistics.
CO3 – Develop the ability to apply appropriate probability distribution in context with engineering problems.
CO4 – Analyze the obtained statistical solution in context with theory.
CO5 – Appraise mathematical problems in terms of statistics from real to complex domains.
CO6 – Evaluate problems on various central tendencies, fitting of curve, and regression and correlation.

TEXT/REFERENCE BOOKS
1. Probability and Statistics for Engineering and the Sciences, Jay L. Devore, Cenage Learning.
2. Probability & Statistics For Engineers & Scientists, 8/E, by Ronald E. Walpole, Sharon L. Myers and Keying Ye. Pearson Education
3. Sheldon M. Ross, "Introduction to Probability Models" Academic Press, 10th edition
4. Sheldon M. Ross, Introduction to Probability and Statistics for Engineers and Scientists, Academic Press, fourth edition.
5. S.C. Gupta & V.K. Kapoor, "Fundamentals of Mathematical Statistics" Sultan Chand & Sons, Eleventh Edition