Pandit Deendayal Petroleum University **School of Liberal Studies**

17BSM305					Applied Statistics					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs./Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	-	-	3	3	25	50	25	---	---	100

COURSE OBJECTIVES

- To understand the basic concept of Probability.
- To develop understanding of probability theory to real world problems.
- To lay the foundation of computational techniques for research and analysis.
- To Analyze the concept of probability distribution in real world problem

UNIT I: **10 Hrs.**

Measures of central tendency and dispersion their Mean, Variance and Covariance. Moments, kurtosis, skewness..

UNIT II: **10 Hrs.**

Estimation, point estimation. Interval estimation, sampling distributions and the concept of standard error, confidence levels, confidence intervals based on a single sample and two samples. Concepts of maximum likelihood estimators.

UNIT III: **10 Hrs.**

Hypothesis tests concerning the variance of a normal distribution, tests concerning the mean of a Poisson distribution.

UNIT IV:

Simple linear regression, estimating model parameters – the method of least squares; inferences about slope parameters, coefficient of determination, predicting Y values, prediction intervals. Introduction to multiple regression and its assumptions, estimating parameters. **10 Hrs.**

TOTAL **10 Hrs.**

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 – Understand the basic concept of probability theory.

CO2 – Analyze the concept of random variable and its property to real world problems.

CO3 – Analyze / interpret the graphical presentation of data in probability.

CO4 – Apply non - traditional search concepts to various unsolved problems.

CO5 – Evaluate a sufficiently accurate solution of various physical models of science and engineering.

CO6 – Design / create an appropriate hybrid algorithm for various problems of science and engineering.

Texts and References

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.