PARUL UNIVERSITY - Faculty of IT & Computer Science

Department of Applied Science & Humanities

SYLLABUS FOR 3rd Sem B.Sc. (IT), BCA, IMCA (A.Y.-IV) PROGRAMME

Statistics (05191206)

Type of Course: B.Sc. (IT), BCA, IMCA (A.Y.-IV)

Prerequisite:

Rationale: The course provides introductory statistical methods and probability concepts, which will be useful for Software in computer field.

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Scheme					Total
				External		Internal			
Lect Hrs/ Week	Tut Hrs/ Week	Lab Hrs/ Week		T	P	T	CE	P	
3	1	0	4	60	0	20	20	0	100

Lect - Lecture, **Tut** - Tutorial, **Lab** - Lab, **T** - Theory, **P** - Practical, **CE** - CE, **T** - Theory, **P** - Practical

Contents:

Sr.	Topic	Weightage	Teaching Hrs.
1	**Vectors**: Basic concept of Vector and Scalar, addition & subtraction, Product of Vectors, Geometric meaning of Scalar and Vector Product. Angle between two vectors, Applications of Dot (scalar) and Cross (vector) Product, Work Done and Moment of Force.	12%	6
2	**Introduction to Statistics**: Definition, advantages, disadvantages and limitations of Statistical and Non- Statistical Analysis. Qualitative data and Quantitative data, frequency, relative frequency and percent frequency distribution, Bar graph, Histogram, ogive, pie chart.	15%	7
3	**Measures of central tendency and Dispersion**: Measures of central tendency: Mean, Median, Mode, Percentiles, Quartiles for group and ungroup data. Dispersion: Range, variance, standard deviation, coefficient of variance. **Correlation** Correlation-Karl Pearson’s coefficient of correlation, Spearman rank correlation coefficient.	19%	9
4	**Probability**: Definition of Experiments, Sample Space, Event, Classical definition of probability, Mutually Exclusive Events, Exhaustive Events, Equally likely events, Properties of Probability, Additive Rule, Conditional Probability, Independent event, Multiplicative Rule. Bayes’ Theorem.	16%	8

5	**Probability Distribution**: Random variable, Expected value, Variance, Discrete Probability distribution: Binomial Distribution and Poisson Distribution, Continuous Probability Distribution: Normal Distribution.	15%	7
6	**Statistical Inference-Tests of Hypothesis**: **Standard error and sampling distribution** Universe distribution, The sample distribution, Utility of Concept of Standard Error **Estimation** Properties of a good Estimator, Test of Significance for Attributes **Testing of Hypothesis** Procedure of Testing of Hypothesis, Two Types of Errors In Testing of Hypothesis, Two-Tailed And One-Tailed Tests of Hypothesis, Measuring The Power of A Hypothesis Test **Tests of Significances for Large Samples** **Tests of Significances for Small Samples**	23%	11

***Continuous Evaluation:**

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc.

Reference Books:

1. Statistical Methods (TextBook)
   S P Gupta; S Chand & Sons; 30th Edition
2. Statistics for business and economics (TextBook)
   Anderson, Sweeney, Williams; Thompson Publication; 9th edition
3. Probability and Statistics for Computer Science
   James L Jonson; Willey Publication
4. Introduction to Applied Linear Algebra
   Stephen Boyd, Lieven Vanderberghe; Cambridge University Press

Course Outcome:

After Learning the course the students shall be able to:

1. To interpret the data by charts and Graph.
2. Apply statistical techniques in decision making in solving real-world problems
3. Use computers to analyze the data.
4. To understand the basic concept of Probability.