Syllabus of Statistics

Descriptive Statistics (Univariate) and Theory of Probability

Credits: 04	Course Code: B060101T	Sem. I
	External Max. Marks 75	Internal Max. Marks. 25

Part – A :   **Descriptive Statistics (Univariate)**

Unit	Topic	No. of Lectures
I	Introduction to Statistics, Meaning of Statistics, Importance of Statistics, Scope of Statistics in Industry, Introduction and Contribution of Indian Scholars in Statistics. Concept of Statistics population, Attributes Variables (Discrete and Continuous), Different types of scales- Nominal, Ordinal, Ratio and Interval, Primary data- designing a questionnaire and schedule, collection of primary data checking their consistency, Secondary data.	06
II	Presentation of data: Classification, Tabulation, Diagrammatic & Graphical Representation of Grouped data, Frequency distributions, Cumulative frequency distributions and their graphical representations, Histogram, Frequency polygon and Ogives Stem and Leaf plot, Box plot.	06
III	Measures of Central tendency and Dispersion and their properties, Merits and Demerits of these Measures.	08
IV	Moments, Shephard's correction for moments, Measures of Skewness and Kurtosis and their significance, Measures based on quartiles.	08

Part- B: Theory of Probability		
V	Random experiment, Trial, Sample point and Sample space, Events, Operations of events, Concept of equally likely, Mutually exclusive and Exhaustive events. Definition of Probability: Classical, Relative Frequency and Axiomatic approaches.	04
VI	Discrete Probability Space, Properties of Probability under Set Theory Approach, Independence of Events, Conditional Probability, Total and Compound Probability theorems, Bayes theorem and its Applications.	09
VII	Random Variables- Discrete and Continuous, Probability Mass Function (pmf) and Probability density function (pdf), Cumulative distribution function (cdf). Joint distribution of two random variables, marginal and Conditional distribution, Independence of random variables.	08
VIII	Expectation of a random variable and its properties Expectation of sum of random variable and product of independent random variable, Conditional expectation and related problems. Moments, Moment generating function (m.g.f) & their properties, Continuity theorem for m.g.f. (without proof). Chebyshev's inequality, Weak law of large numbers for a Sequence of independently and identically distributed random variables and their application. (Statement Only)	09