St. Xavier's College (Autonomous), Ahmedabad
Syllabus of Semester – I of the following departments under Faculty of Science based on Under Graduate Curriculum Framework – 2023 (NEP) to be implemented from the Academic Year 2023-24.

FACULTY OF ARTS

DEPARTMENT OF STATISTICS

Course	Title	Content	Hours/Week	Credit
Minor-I (Theory)	Statistical Methods – 1	U-1: Statistics, Classification and Tabulation of Data, Graphs & Diagrams U-2: Measures of Central Tendency U-3: Measures of Dispersion U-4: Skewness and Kurtosis	4 hrs	**4**

Minor-I (Theory) Statistical Methods-1

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course (Total - 04 Credit)			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Lecture	Practical	Experiential Learning		
Statistical Methods – 1	4	0	0	10 + 2 from a recognized board in any stream	Basic Mathematics, Observation & Analytical Skills

Course Objectives:

CO-1 Identify the sources of data emission, record the data meaningfully, perform Exploratory Data Analysis and draw useful conclusions.
CO-2 Able to compute suitable measures of averages from sample data
CO-3 Able to compute suitable measures of dispersion from sample data
CO-4 Able to compute suitable measures of skewness, and kurtosis from sample data

Learning Outcomes: After completion of this course, the students will be able to

(1) The basic concepts of Classification and Tabulation of Data, Graphs and diagrams
(2) Introduction and calculations of measures of central tendency, measures of dispersion, skewness, and kurtosis.

Unit: 1 Statistics, Classification and Tabulation of Data, Graphs & Diagrams (15Hrs)

- Definitions of Statistics.
- Concept of classification.
- Types and importance of classification.
- Concept of tabulation.
- Types of tabulation.
- Types of statistical variable.
- Formulation of discrete and continuous series for univariate& bivariate data.
- Representation of statistical data by
  a) Histogram b) Frequency Polygon c) Frequency Curve and Cumulative Frequency Curves of less than and more than type (Ogive curves)
- To obtain median, mode, quartiles, deciles, percentiles, from the above graphs and simple examples.

Unit: 2 Measures of Central Tendency (15Hrs)

- Meaning of central tendency.
- Various measures of central tendency: arithmetic mean, median, mode, their merits and demerits.
- Simple examples of Mean, Median and Mode.
- Positional Measures of central tendency: Quartiles, deciles, percentiles and their merits and demerits, Simple examples.

Unit: 3 Measures of Dispersion (15Hrs)

- Definition of dispersion.
- Range, quartile deviation, mean deviation, standard deviation
- Coefficient of dispersion, coefficient of variation.
- Simple examples to find various measures of dispersion by different methods (Range, Q.D., M.D., S.D) for grouped and ungrouped data.

Unit: 4 Skewness and Kurtosis (15Hrs)

- Meaning of Skewness.
- Tests of skewness, Measures of Skewness
- Karl Pearson's and Bowley's coefficients of skewness.
- Meaning of kurtosis, Measures of kurtosis.

Teaching Methodology: Apart from the conventional blackboard teaching, other modes of teaching that will be adopted are power points, group discussions, quizzes, class tests, problem-solving, and assignments.

References:

1. D.S. Sancheti &V. K. Kapoor: Statistics: Theory, Methods & Application", Sultan Chand & Sons, New Delhi.
2. D. N. Elhance: Fundamentals of statistics"
3. Goon, Gupta, Das Gupta: An outline of statistical Theory" Vol1 and 2, Word press, Calcutta.
4. Mathematics books of standard 11th and 12th science published by NCERT/State boards of Education
5. D.S. Sancheti &V.K. Kapoor: "Business Mathematics" Sultan Chand & Sons, New Delhi.
6. Parimal Mukhopadhyay: "Mathematical Statistics" Books & allied (p) Ltd.