AC – 20/04/2024
Item No. – 6.6 Sem. I (7a)

As Per NEP 2020

University of Mumbai

Syllabus for Basket of OE	
Board of Studies in Statistics	
UG First Year Programme	
Semester - I	
Title of Paper	**Credits 2**
I) Introduction to Basic Statistics-I	**2 credit**
II)	
III)	
From the Academic Year	**2024-25**

Semister-I
Open Electives-I
Name of the course: Introduction to Basic Statistics-I

Sr. No.	Heading	Particulars
1	**Description the course :** **Including but Not limited to :**	Introduction: Introduction to Basic statistics-I course is focuses on basic statistics such as collection of data and how to measure variables on different scale. Student will equip with to identify the scale of measurement and analyze elementary statistical analysis through graphical presentation. Also student will learn to identify nature of the data through statistical methods. This course mainly emphasizes the method of collecting data, summarizing and presenting data, and drawing inferences from the data. This course will be useful for science, humanity and commerce faculty. This course will be offered other than science faculty students which will be very useful to gain knowledge about basic statistics in their field. This course will be applicable to various field to analyze their basic data structure. This course is focuses practical as well as theoretical aspects of basic statistics along with subjects from psychology, Economics, sociology, commerce, Computers , Mathematics , IT etc. There is growing demand for highly skilled statisticians in the 21st century in many fields including government, banking sector, health sciences, veterinary sciences, agricultural sciences, business, and social sciences etc
2	**Vertical :**	Open Elective
3	**Type :**	Theory
4	**Credit**:	2 credits (1 credit = 15 Hours for Theory or 30 Hours of Practical work in a semester)

5	**Hours Allotted :**	30 Hours
6	**Marks Allotted**:	50 Marks
7	**Course Objectives**: Students will be able to, 1. Understand the meaning of Statistics and scope of Statistics. 2. Understand techniques of data collection and its presentation. 3. Compute various measures of central tendencies to know the entire data by a centralized single value. 4. Understand spread and variation of data using various techniques of measure of dispersion. 5. Understand the behavior of data using skewness and kurtosis and study the nature of probability curve.	
8	**Course Outcomes**: **: on successful completion of the course Students Should be able to,** 1. Calculate arithmetic mean and its applicability 2. Differentiate between qualitative and quantitative data through scale of measurement. 3. Construct graphs and diagrams from data and interpret the result. 4. Compute Skewness and Kurtosis of the data to describe nature of data distribution.	

9	**Modules**:-	**Lectures**
	Module 1: Classification, Tabulation and Presentation of data.	
	• Definition and scope of Statistics • Types of data: Qualitative and Quantitative data, Geographical data, Time series data and Crosssection data • Measurement of scales: Nominal, Ordinal, Interval and Ratio. • Primary data and Secondary data • Classification and Tabulation (One way and Two way). • Frequency distributions: Uni-variate and Bi-variate • Diagrammatic representation of data	15

Simple bar diagram, Multiple bar diagram, Subdivided bar diagram and Pie-chart • Graphical representation of data Histogram, Frequency Polygon, Frequency Curve, Cumulative frequency curve (Less than and more than type).	
Module 2: Measures of central tendency and Measures of Dispersion	**15**
Measures of central tendancy • Concept and Requirements of good measures of central tendency. • Arithmetic mean (Simple, weighted mean, combined mean)for grouped and un-grouped data, Merits, demerits and its applicability • Positional averages: Median, Mode, and Quartiles (for grouped and un-grouped data) Merits, demerits and its applicability • Graphical representation of mode, median and Quartiles. • Empirical relation between mean, median and mode (Only statement) **Measures of Dispersion** • Concept and requirements of good measures of dispersion. • Absolute and Relative measures of dispersion: Range, Quartile Deviation , Mean absolute deviation, Variance • and Standard deviation (for grouped and un-grouped data) Merits, demerits and its applicability • Raw moments and central moments , relation between them upto order four (only statement). • Measures of Skewness and Kurtosis: Karl Pearson's measure of Skewness , • Measures of skewness and kurtosis based on moments.(Only • formulae) and their interpretation	

Reference Books

- David S. : Elementary Probability, Cambridge University Press.
- Hoel P.G. : Introduction to Mathematical Statistics, Asia Publishing House.
- Hogg R.V. and Tannis E.P. : Probability and Statistical Inference.McMillan Publishing Co. Inc.
- Pitan Jim : Probability, Narosa Publishing House.
- Goon A.M., Gupta M.K., Dasgupta B. : Fundamentals of Statistics, Volume II :The World Press Private Limited, Calcutta.
- Mukhopadhyay P. An Introduction to the Theory of Probability, World Scientific Publishing Company, 2011.
- Grewal P. S, Methods of Statistical Analysis, Sterling Publishers, 1990
- S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand and Sons

Format of Question Paper:

Internal Continuous Assessment: (20 marks)

Assignment/viva Quizzes, Class Tests, presentation, project, assignment etc	**Class Test**	**Total**
05	15	20

Semester End Examination: (30 marks)

Semester End Examination will be of 30 marks of 01 hour duration covering entire syllabus of the semester. All questions are Compulsory.

Theory Question Paper Pattern:

Q 1	Attempt any one question out of two questions (Module I and II)	Max. marks: 10
Q 2	Attempt any two questions out of three questions (Module I)	Max. marks: 10
Q 3	Attempt any two questions out of three questions (Module II)	Max. marks: 10

Sign of the BOS Chairman
Dr. Santosh Gite
Board of Studies in Statistics

Sign of the Offg. Associate Dean
Dr. Madhav R. Rajwade
Faculty of Science & Technology

Sign of the Offg. Dean
Prof. Shivram S. Garje
Faculty of Science & Technology