

M. G. Science Institute, Ahmedabad

Autonomous | Affiliated to Gujarat University, Ahmedabad

(Managed by The Ahmedabad Education Society)

Department of Statistics

Bachelor of Science (Hons.) in Statistics

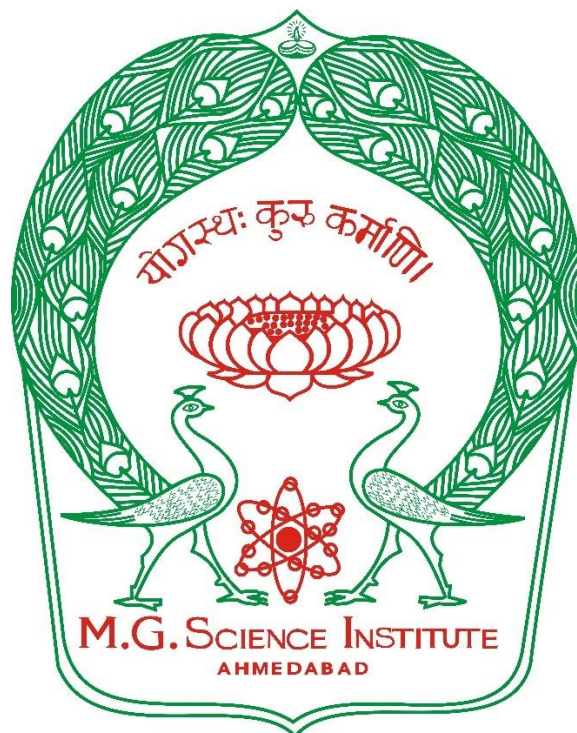
B.Sc. (Hons.) Statistics

4 Year, 8 Semester Full-Time Programme

Choice Based Credit System (CBCS) & Grading System

Outcome-Based Education Pattern

(Effective from Academic Year 2024-25)



Detailed Syllabus for STM113 Basics of Data Science

Semester: I	Course Title: Basics of Data Science (T)	Credit: 2
Course No.: STE113 (T)		Hours: 2/week

Course Outcomes: On successful completion of the course the learner will be able to

CO	COGNITIVE ABILITIES	COURSE OUTCOMES
CO 1	REMEMBERING	Recall the concept of Statistical Population and Sample. Recall the types of data and when to use which type of data. Remember when to use which type of charts and graphs.
CO 2	UNDERSTANDING	Understand and Summarize the information in the data using different charts and summary measures.
CO 3	APPLYING	Describe the sample data with appropriate charts and diagram.
CO 4	ANALYSING	Analyze the sample data from various domains through exploratory data visualization and summary measures.
CO 5	EVALUATING	Organize and summarize the information by suitable presentation and computation.
CO 6	CREATING	Students can visualize the data graphically and summarize the data numerically for real-life data analysis problems.

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	1	2	1		
CO 2	1	1	1		
CO 3	1	2	1		
CO 4		1	2		
CO 5	1	1	2		
CO 6		2	1	1	1

Unit	Detailed Syllabus	No. of Hours of Teaching
I	Introduction to Statistics Types of data: Primary, Secondary, Internal, and External data and their sources. Designing a questionnaire schedule. Classification of data: Qualitative, Quantitative: Discrete, Continuous; Chronological (Time series) data. Nominal, Ordinal, Interval, and Ratio data. Frequency: grouped and ungrouped data; Construction of frequency and cumulative frequency distribution. Presentation of qualitative data: Tabulation (up to four attributes).	15
II	Data Visualization Graphical representation of grouped data: Histogram, frequency curve, frequency polygon, ogives (cumulative frequency curves), Diagrammatic representation of data: Bar diagrams- simple Bar, multiple bars, sub-divided bar, and percentage bar diagrams. Two-dimensional diagrams: Rectangles and Pie diagrams. Stem - Leaf plot. Bivariate: Frequency distribution, Marginal and Conditional frequency distributions	15

Suggested Reference Books:

1. Applied Statistics, Publisher: Books & Allied (P) Ltd. Mukhopadhyay P. (2015).
2. Basic Statistics, Agarwal, B. L., New Age International (P) Ltd.
3. Introduction to the theory of Statistics, Mood, A. M., Greybill, F.A., Boes, D.C., McGraw Hill.
4. Fundamentals of Mathematical Statistics, S. C. Gupta and V. K. Kapoor, Sultan Chand and Sons, New Delhi.
5. Statistical Methods, Tata Mcgraw Hill Publishing. Das (2009).
6. Statistical analysis: Graphs and diagrams, S. M. Nair and M. Garg, Spectrum Books (P) Ltd, New Delhi.

Semester: I	Course Title: Basics of Data Science-I (P)	Credit: 2
Course No.: STE113 (P)		Hours: 4/week

Part A (Manual)

Sr. No.	Title of the Practical	No. of Hours of Teaching
1	Methods of Classification and Construction of Frequency Distribution. (One-way)	30
2	Methods of Classification and Construction of Frequency Distribution. (Two-Way)	
3	Present the data using Bar chart (Single, multiple, divided)	
4	Present the data using Pie chart	
5	Present the data using scatter diagram,	
6	Present the data using frequency curve, frequency polygon and ogive curve.	

Part B (Using MS Excel)

Sr. No.	Title of the Practical	No. of Hours of Teaching
1	Methods of Classification and Construction of Frequency Distribution. (One-way)	30
2	Methods of Classification and Construction of Frequency Distribution. (Two-Way)	
3	Present the data using Bar chart (Single, multiple, divided)	
4	Present the data using Pie chart	
5	Present the data using scatter diagram,	
6	Present the data using frequency curve, frequency polygon and ogive curve.	