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)



M 3 Thake

B. Sc. Sem I Statistics

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Detailed Syllabus for STM111 Descriptive Statistics

Semes	ter: I	Course Title: Descriptive Statistics	Credit: 4			
Course No.: STM111		•	Hours: 4/week			
Course Outcomes: On successful completion of the course the learner will be able to						
СО	COGNITIVE	COURSE OUTCOMES				
	ABILITIES					
CO 1	REMEMBERING	Recall the concept of Statistical Population and Sample.				
		Recall the types of data and when to use which ty	ype of data.			
		Remember when to use which type of charts and	graphs.			
CO 2	UNDERSTANDING	G Understand various measures of central tendency	, dispersion,			
		skewness and kurtosis. Summarize the information	on in the data using			
		different charts and summary measures.	-			
CO 3	APPLYING	Describe the sample data with suitable central ter	ndency, dispersion,			
		skewness and kurtosis measures.				
CO 4	ANALYSING	Analyze the sample data from various domains the	nrough exploratory			
		data visualization and summary measures. Analy	ze qualitative data.			
CO 5	EVALUATING	Organize and summarize the information by suit	able presentation			
		and computations.	~			
CO 6	CREATING	Students can visualize the data graphically and su	ummarize 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 Tooching
Ι	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	15

	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	
III	Measures of Central Tendency Concept of central tendency, various measures of central tendency and their interrelationship. Their merits and demerits. The empirical relation between mean, median, and mode. Properties and applications of measures of central tendency. Partition values (quartiles, deciles and percentiles).	15
IV	Measures of Dispersion and Moments Concept of variation/dispersion, quartile deviation, Absolute and relative measures of dispersion with their merits, demerits, and applications. Moments: raw moments, central moments, factorial moments, and their interrelationship. Skewness, Kurtosis and their measures. Box plot.	15

Suggested Reference Books:

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- 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.

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