SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2026-2027

B.Sc. Statistics (Faculty of Science)
Minor
B.Sc. Fourth Year Semester (VII)

Course Code	US07MISTA01	Title of course	Sample Survey
Total Credit of course	02	Hours per week	02

Course Objectives	• To collect information from respondents in a systematic way. • To save time and resources by collecting data from many respondents efficiently. • To provide reliable data for analysis, reports, and planning. • To understand the basic concepts and principles of sample surveys. • To develop the ability to design and conduct a basic sample survey. • To apply appropriate sampling techniques to real-life statistical problems.

Course Content:-

Unit	Description	Weightage (%)
1	Introduction to Sampling Survey • Definition: Population, Sample, Parameters, Statistics, Sampling Distribution, Standard error • Principle steps in Construction of Sample survey • Sampling and non-Sampling Errors • Comparison of Sampling method with Complete Census method • Limitations of Sampling Questionnaire: • Questionnaire Design and Data Collection: • Meaning and purpose of a questionnaire in sample surveys; • basic principles of questionnaire design; • identification of information required for the survey; • types of questions such as open-ended, closed-ended, dichotomous and multiple-choice questions; • questions on demographic and personal characteristics; • pre-testing and pilot testing;	**50%**
2	Simple Random Sampling • Probability of selecting any specified Unit in the Sample Selection of Simple Random Sample With replacement Without replacement • Estimation of the population mean and its variance • Estimation of standard error • Confidence limits Simple Random sampling of Attributes	**50%**

	• Standard error of sample estimate • Confidence limits • Size of Simple Random Sample for Specified Precision Merits and Demerits of Simple Random Sample Stratified Random Sampling: • Principle Advantage of Stratified Random Sampling • Estimation of mean and its variance • Confidence limits • Allocation of Sample Size: Proportional allocation, Neyman's formula Optimum allocation • Comparison of Stratified Random Sampling with Simple Random sampling without Stratification. • Estimation of gain in Precision due to Stratification • Estimation of sample size of stratified sampling	
Teaching Learning Methodology		

Evaluation Pattern		
Sr.no.	**Details of the evaluation**	**Weightage**
1	**Internal Written/ Practical Examination**	**15%**
2	**Internal continuous Assessment in the form of Practical Viva-voce, Quizzes, Attendance**	**15%**
3	**University Examination**	**70%**

Course Outcomes: Having completed this course the learner will be able to	
1	Apply statistical methods to real-life survey data. Interpret and present survey results clearly and effectively.
2.	Use Excel or statistical software for basic sample survey analysis
3.	Interpret and present survey results clearly and effectively.

Suggested Textbook/ References	
1	M.N. Murthy. Sampling Theory and Methods,2nd Ed., Statistical Publishing Society
2	S.C. Gupta & V.K.Kapoor .Fundamentals of Applied Statistics, 4th Ed., Sultan Chand & Sons Ltd.
3	William G. Cochran. Sampling Techniques,3rd Ed., John Wiley and Sons Ltd.
4	P.V. Sukhatme, B.V. Sukhatme, S. Sukhatme & C. Asok. Sampling Theory and Methods , 3rd Ed., Iowa State University Press
5	Kothari, C.R., & Garg,G.(2014). Research methodology: Methods and techniques, 3rd Ed.,New Age International Publishers.
6	Ranjitkumar.(2019). Research Methodology: A Step-by-Step Guide for Beginners.,5th Ed., Sage Publications India.
7	R.Panneerselvam(2014). Research Methodology: Methods and Techniques.,2nd Ed., PHI Learning**.**

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B.Sc. Statistics (Faculty of Science)
Minor
B.Sc. Fourth Year Semester (VII)

Course Code	US07MISTA02	Title of course	Statistics Practical
Total Credit of course	02	Hours per week	02

Course Objectives:	• To understand opinions, attitudes, preferences, and behaviors of people. • To gather facts and data for research or decision-making. • To measure knowledge, satisfaction, or awareness about a topic. • To identify problems, needs, and areas for improvement. • To distinguish between SRSWR and SRSWOR. • To understand different sampling methods, including Simple Random Sampling and Stratified Random Sampling.

List of Practical

Sr.	Task Manual:
1	Design a Questionnaire for a Sample Survey Preparation of Open-ended and Closed-ended Questions Design of Dichotomous and Multiple-choice Questions
2	Preparation of Questions on Demographic and Personal Characteristics Identification of Information Required for a Sample Survey
3	Pre-testing of a Questionnaire Conduct a Pilot Survey Using a Prepared Questionnaire Collection and Recording of Primary Data Using Google Forms
4	Select a simple random sample from a given population using: Sampling with replacement and Sampling without replacement.
5	For a given population, select a simple random sample and estimate: Population mean, Population total and Standard error of the estimated mean.
6	From a given population, select a simple random sample and estimate: Population proportion and Standard error of the estimated proportion.
7	Determine the required sample size for estimating a population mean or proportion with a specified precision and confidence level.
8	Divide the population into suitable strata and select samples using proportional allocation. Estimate the population mean and standard error.
9	Determine the sample size for different strata using Neyman's optimum allocation and compare the precision with proportional allocation.
10	Compare Simple Random Sampling and Stratified Random Sampling using a suitable dataset and determine which method provides greater precision.