Course Type	Course Code	Name of Course	L	T	P	Credit
DE	**NMCD512**	Missing data analysis in Survey Sampling	3	0	0	3

Course Objective
• The aim of this paper is to teach the students about various techniques which deal with how to manage with the incomplete survey data for providing the desired estimates.
Learning Outcomes
• The students will be equipped with various techniques of statistical analysis in presence of incomplete (missing) data.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Basics of survey sampling: sampling frame, sampling design, basic principles of survey sampling	4	Gives the idea about fundamentals of survey sampling.
2	Types of sampling: Probability sampling and non-probability sampling, Probability sampling: Simple random sampling, Stratified random sampling, Systematic sampling, Cluster and stage sampling.	12	Gives the idea about important sampling schemes applicable in most of the practical situations
3	Use of auxiliary information at estimation stage, Ratio, product, difference and regression methods of estimation and their properties	10	Gives the methods of using the auxiliary information at estimation stage in survey sampling.
4	Introduction of Missing data: Reasons and types of missing data; Techniques to handle the missing data: Imputation method; Mean, Ratio and Regression methods of imputations; Hansen and Hurwitz (1946) technique	8	Gives the idea about handling the missing data problems in survey sampling arise due to non-response
5	Sensitive variable; Randomized response techniques– Warner's, Simmon's and Two Stage response techniques	8	Gives the idea about tackle the problems of non-response in survey sampling when it occurs due to sensitive nature of characteristics.
Total		**42**	

Text Books

1. Cochran, W.G , Sampling Techniques, (1977) 3rd Ed, Wiley Eastern Ltd.
2. Sampling Theory, Narosa Publications, New Delhi by Desraj and Chandhok P.

Reference Books

1. Sampling Theory of Surveys with Applications, IASRI New Delhi, 1984 Ed. by Sukhatme P. V., Sukhatme B. V. and Sukhatme S., and Ashok C.
2. Advanced Sampling – Theory with Applications, Kluwer Publications by Sarjinder Singh.