Sankalchand Patel University

Faculty of Commerce

Bachelor of Commerce (SEM – 3)

In Effect from Academic Year 2022-23

Subject Code: 2CM1010313	**Subject Title: Advanced Statistics -1**
	COURSE TYPE : CORE ELECTIVE

Course Objective: To make the students aware about different advanced statistical approaches, techniques and methods that is applicable in various field of commerce.

Teaching Scheme (Hours per week)				**Evaluation Scheme (Marks)**		
Lecture	**Tutorial**	**Practical**	**Credit**	**University Assessment**	**Institutional Assessment**	**Total**
3	-	-	3	70	30	100

Subject Contents			
Sr. No	**Topic**	**Total Hours**	**Weight (%)**
1	**Principle of Mathematical Induction and Binominal Theorem :** Meaning of Principle of Mathematical Induction and Simple illustrative problems based on it. Binominal expansion of $(x \pm a)^n$ where n is a positive integer, Characteristics of Binominal expansion, its application in simple examples.	9	25%
2	**Multiple and Partial Correlation and Regression :** Definition and Concept of Partial and Multiple Correlation (three variables), Concept of Multiple Regression equations, Numerical example.	9	25%
3	**Sampling Methods – 1 :** Meaning of Population and sample, Need for Sampling, Definition of Population size and Sample size, Points to be considered for determining sample size, Theoretical description of different sampling methods : (1) Non Probabilistic sampling methods – Convenience, Quota, Judgmental, Purposive (2) Probabilistic sampling methods – Simple random sampling method, Stratified random sampling method, Systematic sampling method, Two stage sampling method, Cluster sampling method, Sequential sampling method,	9	25%
4	**Sampling Methods – 2 :** Verification of various results – (1) Mean of sample mean is an unbiased estimator for Sample mean (2) Verification of the formulae for variance of sample mean (3) Sample variance is an unbiased estimator for Population variance, (for with replacement and without replacement simple random sampling) Simple numerical examples for stratifies random sample- To verify the result that the stratified random sample mean is an unbiased estimator for population variance and calculation of the variance of stratified sample mean, Simple numerical examples for systematic sample- To verify the result that the systematic random sample mean is an unbiased estimator for population variance and calculation of its variance.	9	25%

Reference Books:

1. Amir D Aczel, Jayavel Sounderpandian, Complete Busines Statistics, Tata Mc Graw Hill, New Delhi.
2. David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Statistics For Busines and Economics, South-Western Cengage Learning India Pvt. Ltd. New Delhi.
3. Goon Gupta, Dasgupta, An outline of Statistical Theory, Vol- I and II. World Press, Calcutta.
4. Levin and Rubin, Statistics for Management of Survey Sampling, Perntice Hall of India, New Delhi.
5. Parimal Mukhopadhyay, Theory and Methods of Survey Sampling, Perntice Hall of India, New Delhi.
6. Sancheti & Kapoor, Busines Statistics, Sultan Chand & Sons, New Delhi.