

**C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS)
COLLEGE, ANAND**

(Managed by **SARDAR PATEL EDUCATION TRUST, ANAND**)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE **A⁺** KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE **'A⁺'** UGC – MHRD, Govt of India – June 2022

Syllabus as per NEP 2020 with effect from the Academic Year 2024-2025

Bachelor of Commerce (B Com)

Semester -VI

Course Code	UB6MICOM02	Title of the Course	Applied Statistics
Total Credits of the Course	04	Hours per Week	04

Course Objectives	1. To understand the fundamental concepts of sampling and its importance in statistical analysis.
	2. To introduce the principles of hypothesis testing and its application in decision-making.
	3. To understand the significance of small sample tests and their assumptions.
	4. To introduce methods for comparing multiple population means using ANOVA and F-tests. To apply the Chi-Square test for categorical data analysis and independence testing.

Course Content		
Unit	Description	Weightage (%)
1.	Samling Methods (Theory Only): Terminology: Population, Sample, Parameter, Statistic Characteristics of ideal sample, Population Survey, Sample Survey, Concept of Sampling error Sampling Methods, Procedure, Merits and Demerits of (i) Simple Random Sampling (ii) Stratified random Sampling (iii) Systematic Sampling with illustrations	25%
2.	Test of Hypothesis-I (Large Sample Tests) Introduction and procedure of testing a hypothesis, Null & Alternate, Simple & Composite hypothesis, Standard Error, Level of Significance, Type-I and Type-II errors, Power of the test, Confidence interval, One tail & Two tail Tests. Large sample tests (Z-Test): (i) Tests of significance of mean (ii) Test of significance of difference of two means (iii) Test of significance proportion (iv) Test of significance of difference between two proportions	25 %

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3.	Test of Hypothesis-II (Small Sample Tests) Meaning of Small Sample Tests, Concept of Degree of freedom, Assumption, properties and uses of T-Test, Application of T-Test (i) Tests of Significance of mean (ii) Test of Significance of difference of two means (iii) Paired T-Test	25 %
4.	F-Test and Analysis of Variance (ANOVA): Introduction, Definition Variance Ratio Test (F Test), One way ANOVA, Two-way ANOVA. Chi-Square Test: Definition of χ^2 test, Use of Chi-Square test, Limitations of χ^2 test, Goodness of Fit test, Test of Independence of two attributes, Yate's Correction. Using Statistical software or mobile application compares the test results.	25 %

Teaching-Learning Methodology	Lectures, Assignment, Quiz, Seminars, Content- Focused Methods, Interactive / Participative Methods and online lectures.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Mid Semester Examination (CCE)	30%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Viva voce, Attendance (CCE)	20%
3.	Semester end Examination (SEE)	50%

Course Outcomes	
1.	Students will gain the ability to select an appropriate sampling method based on the research context.
2.	Students will be able to formulate and test hypotheses using statistical techniques.

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3.	Students will be able to distinguish between large and small sample tests and apply the appropriate test and they will apply small sample tests in real-world problem-solving scenarios.
4.	Students will understand and apply F-tests and ANOVA for analysing variance across multiple groups and will conduct Chi-Square tests to assess goodness of fit and independence of attributes

Suggested References

Sr. No.	References
1	Sancheti & Kapoor (2010): Statistics Theory, Methods and Applications, Sultan Chand & Sons, New-Delhi.
2	Kapoor V. K (1991): Business Mathematics, Sultan Chand and Sons, New Delhi.
3	D. N Elhance (2019): Fundamental of Statistics, Kitab Mahal, New Delhi.
4	Gupta S P (1998): Statistical Methods (28 th Ed), Sultan Chand & Sons, New Delhi.
5	Gupta S C (2010): Fundamentals of Statistics (6 th Ed) Himalaya Publishing House
6	Vyas H R (2010): Business Statistics (5 th Ed), B S Shah Prakashan, Ahmedabad.
7	R P Hooda (2013): Introduction to Statistics (1 st Ed), Mac Millian Publication Ltd, New Delhi.
8	Jani B B (2011): Business Statistics (1 st Ed), Himalaya Publishing House, Ahmedabad
9	Ken Black (2012): Applied Business Statistics 7 th Ed), Wiley India

On-line resources to be used if available as reference material

<https://atozmath.com/default.aspx>

<https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=ZLCHeZEhCZ8yCri36nSF3A==>