GUJARAT TECHNOLOGICAL UNIVERSITY

STATISTICAL AND QUANTITATIVE METHODS IN PLANNING-II
SUBJECT CODE: 1025504
B.PLAN 2ND SEMESTER

Prerequisite: NA

Rationale: To study Advanced Statistical and Quantitative Methods and Applications in Planning.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	Field work (T)	P	C	Theory Marks		Practical Marks		
				ESE(E)	PA (M)	PA (V)	PA(I)	
3	0	0	3	50	50	0	0	100

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment.

Content:

Sr. No.	Content	Total Hrs	%Weightage
1	**Correlation and Regression Analysis :**Degree of correlation, Scaffer Diagram, correlation analysis, correlation co-efficient, co–efficient of rank correlation, partial correlation analysis and multiple correlation, simple Linear and nonlinear regression, lines of regression, coefficient of regression; Multiple Regression Analysis; Applications in planning.	9	15%
2	**Statistical Inference :**Types of estimation; point, interval, testing of hypothesis, statistical hypothesis, simple and composite tests of significance, null hypothesis, alternative hypothesis, types of errors, level of significance, critical region; two tailed and one tailed tests, large and small sample tests for mean and proportion; Applications in planning.	12	30%
3	**Chi-Square Test and Analysis of Variance (ANOVA) :**Chi-square distribution: applications of chi-square distribution; test of goodness of fit; ANOVA distribution; Applications in planning.	9	15%

4	**Mathematical Programming Techniques :**Mathematical Programming models, linear programming problems, transportation problems, assignment problems, applications in planning .	9	20%
5	**Decision Theory :**Decision making under conditions of certainty, uncertainty, and conditions of risk, decision trees, pay off matrix, applications in planning.	9	20%

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
20	**40**	**20**	**10**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Applied Statistics by S.C. Gupta, V.K. Kapoor, Sultan Chand.
2. Problems and Solutions in Statistics by V.K. Kapoor, Sultan Chand.
3. Theory and Problems by M.R. Spigel, McGran Hill.
4. Fundamental of Statistics by S.C. Gupta, Himalaya Publications.
5. Statistical Methods for Social Scientists by K.A. Yeomans, Penguin Education Series.
6. Statistical Methods for Engineers by McGuens, Prentice Hall.
7. Statistics for Management by Levin, Rubin, Prentice Hall.

Course Outcome:

After learning the course the students should be able to:

1. To study essential Concepts of Correlation and Regression Analysis and Statistical Inference besides Ch.-square, An ova tests.
2. To study Mathematical Programming Techniques and Decision Theory.

List of Exercises / Practical:

Visit to the Office of National Sample Survey and submit Report.

List of Assignments/Tests :

1. Test on Unit 1 and Unit 2.
2. Assignment on Application of Decision Theory in real life problems in Urban Areas.

List of Open Source Software/learning website: NA