

Course Code	Course Title	C	H	I	E	T
17U4MMC7	Mathematical Statistics	2	2	25	75	100

Learning Objectives

- This course is to enable the students to understand the various statistical techniques and apply them in real life problems.

Learning Outcomes

On satisfying the requirement of this course, students will have the knowledge and skills to

- Calculate Measures of Central Tendency and Measures of dispersion for both grouped and ungrouped data.
- Find the Moments, Skewness and Kurtosis.
- Compute and interpret the results of Correlation & Regression analysis.

Unit I Measures of Central Tendency

Arithmetic Mean - Change of Origin and Scale – Properties of Mean – Geometric Mean – Harmonic Mean – Median – Quartiles – Partition values and their Graphical Location – Mode – Requisites for an Ideal Measure of Central Tendency.

Unit II Measures of Dispersion

Dispersion – Characteristics of an Ideal Measure or Dispersion – Measures of Dispersion – Range – Mean Deviation – Variance – Standard Deviation – Coefficient of Variation – Relation between Standard and Root – Mean Square Deviation – Effect of change of origin and scale on S.D – Problems.

Unit III Moments and Skewness

Moments – Moments about the Mean in terms of Moments about any Point and Conversely – Effect of change of origin and scale on Moments - Sheppard's Correction to Moments of Grouped Frequency Distribution – Skewness – Kurtosis - Pearson's β and γ Coefficients – Factorial Moments-Absolute Moments Problem.

Unit IV Correlation

Bivariate distribution – Correlation Coefficient – Effect of Change of Origin and Scale -
Theorem Cauchy-Schwartz Inequality – Limits for Coefficient of Correlation – Rank Correlation
Coefficient Problems.

Unit V Regression

Linear Regression, Curvilinear, Regression – Equations of the Lines of Regression, Regression
Coefficients – Standard Error of Estimate –Theorem – Regression Curves-Problems.

Text Book:

1. J.N. Kapur, H.C. Saxena, Mathematical Statistics, Reprint 2005, S. Chand and Company.
Chapters:2(2.5.1 – 2.5.5, 2.6),3,10

Reference Books:

1. D.C.Sanchetti and V.K.Kapoor, Statistics (Theory, Method and Application), Reprint
2010, Seventh thoroughly Revised Edition, Sultan Chand and sons.
2. S.C.Gupta and V.K.Kapoor, Fundamentals of Mathematical Statistics, Reprint 2000, 9th
revised edition, Sultan Chand and sons.