

MT-337 INTRODUCTION TO STATISTICS

Introduction to Statistics:

Population, Sample, Descriptive and Inferential Statistics, Observations, Data, Variables and their types, Levels of measurement, Collection of primary and secondary data.

Presentation of Data:

Introduction, classifications, Tabulation, Frequency distribution, Graphical representation, Bar diagrams, Pie chart, Histogram, Frequency Polygon, Frequency Curves & their types. Cumulative Frequency Polygon or Ogive.

Measures of Central Tendency & Dispersion:

Statistical Averages, Median, Mode, Quartiles, Range, Standard Deviation, Variance & its coefficient, Practical Significance in related problems.

Probability and Probability Distributions:

Introduction to probability, Discrete and continuous random variable, Binomial, Poisson and Normal Distribution.

Sampling and Sampling Distributions:

Introduction, sample design and sampling frame, bias, sampling and non sampling errors, sampling with and without replacement, probability and non-probability sampling, Sampling distributions for mean and proportion.

Statistical Inference and Testing of Hypothesis:

Introduction, Confidence interval, Tests of Hypothesis for population means and proportions, z, t, Chi-Square and F distribution, Analysis of Variance and ANOVA table.

Regression & Correlation:

Introduction, Scatter diagrams, Correlation & its Coefficient, Regression & its Coefficient, Coefficient of Determination, Multiple Linear regression.

Reference Book(s):

- Walpole, Myers, Myers &Ye, Probability and Statistics for Engineers and Scientist, 9th edition, Prentice Hall, 2010.
- Walpole, R. E. Introduction to Statistics, 3rd Ed., Macmillan Publishing Co., Inc. New York.
- Allan G. Bluman, Elementary Statistics A step by step approach, 8th edition, McGraw-Hill Education, 2011.