Course Content Outlines:

1. **Introduction [Text Book – Chapter 01– : 1.1 & 1.2]**

   - Defining Statistics
   - Meaning of variables, data & types of data
   - Population and sample
   - Statistic and parameter
   - Objective of learning statistics

2. **Summarizing Data [Text Book – Chapter 02– : 2.1 & 2.2]**

   - Frequency distribution
   - Bar diagram
   - Pie chart
   - Histogram
   - Frequency polygon
   - Cumulative frequency polygon (ogive curve)
   - Stem & Leaf Diagram

3. **Descriptive Statistics [Text Book – Chapter 02– : 2.3 -2.6]**

   a. **Measures of location (Central Tendency)**
      - Mean (Arithmetic, Geometric and harmonic mean)
      - Median
      - Quartiles, Deciles and Percentile
      - Mode

   b. **Measures of variability (Dispersion)**
      - Meaning of dispersion
      - Range and Inter quartile range (IQR)
      - Mean deviation
      - Variance and standard deviation
      - Five Number summery & Box and whisker plot
      - Moments, Skewness and Kurtosis

4. **Simple regression and correlation [Text Book – Chapter 03– : 3.1 -3.3]**
   - Introduction
   - Scatter Diagram and simple correlation
   - The least square method
   - Coefficient of determination*
   - Rank correlation

---------- **Mid Term** ----------

5. **Probability [Text Book – Chapter 05 : 5.1 - 5.4]**
   - Simple probability
   - Independent and mutually exclusive event
   - Addition and multiplication rule
   - Conditional probability

- Bayes' theorem

6. **Probability Distribution (Discrete & Continuous) [Text Book – Chapter 06 : 6.1 - 6.3]**
    - Introduction
    - Binomial Distribution
    - Geometric Distribution
    - Poisson Distribution
    - Normal Distribution
    - Expectation and variance
    - Linear combination of randoms variables

7. **Statistical Inferences (Confidence interval) [Text Book – Chapter 08 : 8.1 - 8.3]**
    - Point and Interval Estimation of Population
    - Constructing a Confidence Interval to Estimate a Population Mean and Proportion

8. **Statistical Inferences (Hypothesis test) [Text Book – Chapter 09 : 9.1 - 9.4]**

    - Steps for performing a Significance Test
    - Significance Tests about proportion
    - Significance test about mean
    - Decisions and Types of Error