



# Department of Commerce

## Veer Narmad South Gujarat University, Surat

### Syllabus of Certificate Course : Advanced Data Analysis Techniques (MS Excel, Jamovi and R-programming)

#### Course Objectives:

- Understanding about data entry into excel and Jamovi.
- Become a critical thinker about statistical Methods and techniques thoroughly.
- Analyze the data using different tools and techniques on software.
- Interpretation of the result given by the software and preparation of final draft to present the outcome.

#### Course Content:

#### **Unit1 - Introduction of Statistics its application Using Excel and Jamovi.**

- Meaning, data and information with Examples
- Qualitative Data and Quantitative Data with examples.
- Types of Quantitative Data
- Data Collection Methods: Data-primary data and Secondary data
- Types of measurement of scale (Nominal/Ordinal/Interval/Ratio)
- Data Coding and Decoding
- Questionnaire Design
- Preparation of Google Form
- Introduction to Jamovi for Data Entry: Installation, Run Naviagate Jamovi and its Module.
- Data Handling with Jamovi: Import Data, define Variables, insert variable, Insert cases, Create new Computed and transformed variables, Weights Variable, Filter Data and Export Result.



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### Unit2 - Descriptive Statistics Using Excel and Jamovi.

#### Descriptive Statistics:

- Graphical and Tabular Presentation of the data and Pivot Table.
- Measures of Central Tendency – Mean: Arithmetic Mean, Harmonic Mean, Geometric Mean, Median and Mode.
- Measures of Dispersion (Variation) – Range, Inter quartile Range, Standard Deviation, Mean Deviation, Quartile Deviation, Variance, co-variance , Skewness, Kurtosis
- Correlation and Regression

### Unit3 - Inferential Statistics Using Excel and Jamovi.

#### Large Sample test

- Single Mean, Two Means, Two SD, Single Proportion And Two Proportion Test, Correlation Test
- Regression Analysis

#### Small sample Test

##### (a) Parametric Test:

- Normality Test
- One Sample t -Test And Two Sample t-Test: (i) For Independent Variables, (ii) For Dependent Variables,
- F-Test, ANOVA Test, ANCOVA Test, MANOVA, MANCOVA, Factor Analysis

##### (b) Non-Parametric Test:

- Chi-Square Test, Sign Test, Sign Ranked Test, Mann Whitney U-Test, Krushkal Wallis Test, Friedman Test



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### Unit4 – Use of R-Programming for Statistical Analysis.

- Installation of R studio
- Data Handling with R
- Insert variables and cases
- Descriptive Statistics
- Inferential Statistics



### Distribution of Units in Hours

- **Unit: 1**                      **8 Hours**
- **Unit: 2**                      **8 Hours**
- **Unit: 3**                      **18 Hours**
- **Unit:4**                      **16 Hours**

### Reference Books

1. Research Methodology by C.R. Kothari, Garg, Gaurav
2. Research Methodology for Ph.D. Coursework by Dina Nath Pandit
3. Marketing Research by G.C. Beri
4. Statistical Methods by S.P. Gupta
5. Marketing Reaserch By Naresh Malhotra



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### Exam pattern and criteria

**Total Score: 100**

**Practical/ assignment score = 30 Marks**  
**Project Preparation = 30 Marks**  
**MCQ Exam Score = 40 Marks**

**Passing Marks: Minimum 40 marks**

**Course Fees: Rs. 3500**