**PARVATHANENI BRAHMAYYA**
**SIDDHARTHA COLLEGE OF ARTS & SCIENCE**
*Autonomous*
Siddhartha Nagar, Vijayawada–520010
*Re-accredited at 'A+' by the NAAC*

| Course Code | 23STMAP237 | | | | | | |
|---|---|---|---|---|---|---|---|
| **Title of the Course** | Excel-Based Statistics Lab for Business Management | | | | | | |
| **Offered to: (Programme/s)** | BBA – Honours General -Section A & B | | | | | | |
| **L** | **0** | **T** | **0** | **P** | **2** | **C** | **1** |
| Year of Introduction: | **2024-25** | | Semester: | | | | 3 |
| **Course Category:** | MAJOR | | Course Relates to | | Local, Regional, National, Global | | |
| **Year of Introduction:** | 2024 - 25 | | Percentage: | | NA | | |
| **Type of the Course:** | Practical | | | | | | |
| **Crosscutting Issues of the Course:** | NA | | | | | | |
| **Pre-requisites, if any** | Basic Mathematics | | | | | | |

**Course Description:**

This lab component is designed to provide students in the Bachelor of Business Management (Honours) program with hands-on experience in statistical analysis using Microsoft Excel. The lab sessions will cover various statistical concepts, including graphical representations, measures of central tendency and dispersion, moments, skewness, correlation, and regression analysis. Through practical exercises, students will develop essential skills for interpreting and analyzing data in a business context.

**Course Aims and Objectives:**

| S. No | COURSE OBJECTIVES |
|---|---|
| 1 | Statistical Software Proficiency: Utilize statistical software (Excel, SPSS, Python, R, etc.) to perform calculations, create visualizations, and interpret results efficiently. |
| 2 | Data Summarization: Calculate and interpret measures of central tendency (mean, median, and mode) and dispersion (range, variance, standard deviation). |
| 3 | Data Distribution: Analyze data distribution patterns, including skewness and kurtosis. |
| 4 | Relationship Analysis: Explore relationships between variables using correlation and simple linear regression. |

**Course Outcomes**

At the end of the course, the student will be able to…

| NO | COURSE OUTCOME | BTL | PO | PSO |
|-----|----------------|-----|-----|-----|
| CO1 | utilize Excel to effectively represent and analyze data graphically. | K3 | 1 | 1 |
| CO2 | calculate and interpret various measures of central tendency using spread sheets | K2 | 1 | 1 |
| CO3 | apply measures of dispersion to assess data variability and make informed decisions. | K2 | 1 | 1 |
| CO4 | apply the concepts of moments, skewness, and kurtosis to analyze the data sets using excel | K2 | 1 | 1 |
| CO5 | conduct correlation and regression analyses to make informed business decisions based on data. | K2 | 1 | 1 |

**For BTL: K1: Remember; K2: Understand; K3: Apply; K4: Analyze; K5: Evaluate; K6: Create**

| CO-PO-PSO MATRIX | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CO NO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 |
| CO1 | 3 | | | | | | | 3 | |
| CO2 | 2 | | | | | | | 2 | |
| CO3 | 2 | | | | | | | 2 | |
| CO4 | 2 | | | | | | | 2 | |
| CO5 | 2 | | | | | | | 2 | |

**Use the codes 3, 2, 1 for High, Moderate and Low correlation Between CO-PO-PSO respectively**

**Course Structure**

**Lab Component -1:** Diagrammatic and Graphical representation of data – Bar, Pie, Histogram, Frequency polygon and Ogive curves.

**Activities:**

1. Provide students with datasets and ask them to choose the most appropriate graph to represent the data (bar graph, histogram, pie chart, line graph) using Excel.
2. Collect data on the number of students present each day for a week.
3. Diagrammatic and Graphical representation of data – Bar, Pie, Histogram, Frequency 4. polygon and Ogive curves using MS – Excel.

**Lab Component -2:** Computations of Measures of central tendency – Arithmetic mean, Geometric Mean, Harmonic Mean, Median and Mode.

**Activities:**

1 Analyze the average temperature, rainfall, and wind speed in a particular region.
2. Provide students with business-related datasets (e.g., sales figures, customer, demographics, financial performance).
3. Calculate and interpret mean, median, and mode to draw conclusions using Excel

**Lab Component -3:** Computations of Measures of Dispersion – Quartile Deviation, Mean Deviation, Standard Deviation, Variance and Coefficient of variation.

**Activity:**

1. Collect the weather data and analyze the range, variance, and standard deviation of temperature, rainfall, and wind speed in a particular region using Excel

**Lab Component - 4:** Computations of Non – central, Central, $\beta_1 \, and \, \beta_2$ and Sheppard's correction for grouped data.

**Activity:**

1. Collect a dataset of numerical values. Calculate the first, second, third, and fourth moments of the data using Excel

**Lab Component – 5:** Computations of Karl Pearson's Coefficient of skewness and Bowley's Coefficient of skewness for grouped data.

**Activity:**

1. Provide students with real-world business datasets (e.g., stock prices, sales figures, customer demographics) and guide students through manual calculations of moments, skewness, and kurtosis to understand the underlying formulas.

**Lab Component – 6:** Computations of Correlation coefficient for ungrouped data.

**Activities:**

1. Collect relevant business data, such as sales figures, marketing expenses, customer satisfaction ratings, employee productivity, or financial indicators. Analyze the correlation coefficient using Excel and draw conclusions

2. Analyze real-world business case studies to identify and interpret correlations between relevant variables.

**Lab Component – 7:** Construction of regression lines for ungrouped data.

**Activities:**

1. Gather data on two variables (e.g., advertising expenditures and sales revenue, study hours and exam scores).

2. Collect the data on a particular disease Predict disease risk, evaluate treatment effectiveness, or analyze healthcare costs using Excel

**Lab Manual:**
1. Statistical Data Analysis using Excel– Sri K. Siva Naga Raju, 2024 First Edition, Department of Statistics, PBSCAS

**References:**
1. Statistics for Managers Using Microsoft Excel by David M. Levine, Timothy C. Krehbiel, and Mark L. Berenson, Pearson Education; Eighth edition (30 June 2017)

**23STMAP237:** Excel-Based Statistics Lab for Business Management

**Offered to BBA Honours (General)- A & B Sections**

**Max. Marks: 50**                                                      **Max. Time: 3Hrs**

**Pass. Min: 20**

| | | |
|---|---|---|
| **(A)** | **Evaluation Procedure** | **35 Marks** |
| **I** | Experiments (Exam & Execution) | **30  Marks** |
| **II** | Viva | **3  Marks** |
| **III** | Record | **2  Marks** |
| **(B)** | **CONTINUOUS ASSESMENT(Internal)** | **15 MARKS** |

15 marks for the continuous assessment (Day to day work in the laboratory shall be evaluated for 15 marks by the concerned laboratory teacher based on the regularity/ record/viva). Laboratory teachers are mandated to ensure that every student completes 80%-90% of the lab assessments.

**TOTAL: (A)+(B) =**                                                      **50 MARKS**