

SEMESTER-I**(OPEN ELECTIVE (OE))****(For Arts and Commerce Students)**

(OPEN ELECTIVE (OE))		
(For Arts and Commerce Students)		
Title of the Course and Course Code -VGVUOE102	BASIC STATISTICS	No. of Credits: 03
Unit No.	Content	No. of Lectures
I	<p>Summarization Measures</p> <p>• Measures of Central Tendencies: Definition of Average, Types of Averages: Arithmetic Mean, Median, and Mode for grouped as well as ungrouped data. Quartiles, Deciles and Percentiles. Using Ogive locate median and Quartiles. Using Histogram locate mode. Combined and Weighted mean.</p> <p>• Measures of Dispersion: Concept and idea of dispersion. Various measures: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance, Combined Variance.</p>	15 Hrs.
II	<p>Bivariate Linear Correlation and Regression</p> <p>Correlation Analysis: Meaning, Types of Correlation, Determination of Correlation: Scatter diagram, Karl Pearson's method of Correlation Coefficient and Spearman's Rank Correlation Coefficient.</p> <p>Regression Analysis: Meaning, Concept of Regression equations, Slope of the Regression Line and its interpretation. Regression Coefficients, Relationship between Coefficient of Correlation and Regression Coefficients, Finding the equations of Regression lines by method of Least Squares.</p>	15 Hrs.
III	<p>Time series and Index Numbers</p> <p>Time Series: Concepts and components of a time series. Representation of trend by Freehand Curve Method, Estimation of Trend using Moving Average Method and Least Squares Method. Estimation of Seasonal Component using Simple Arithmetic Mean for Additive Model only</p>	15 Hrs.

	<p>(For Trend free data only). Concept of Forecasting using Least Squares Method.</p> <p>Index Numbers:</p> <p>Concept and usage of Index numbers, Types of Index numbers, Aggregate and Relative Index Numbers, Lasperye's, Paasche's, Dorbish Bowley's, Marshall-Edgeworth and Fisher's ideal index numbers, Test of Consistency: Time Reversal Test and Factor Reversal Test. Chain Base Index Nos. Shifting of Base year. Cost of Living Index Numbers, Concept of Real Income, Concept of Wholesale Price Index Number.</p>	
--	---	--

Learning objective

1. The main objective of this course is to introduce statistics to undergraduate students of commerce, so that they can use them in the field of commerce and Industry to solve the real life problems.
2. To analyze the result by data handling.
3. To judge the reliability of measures of central tendency and measures of dispersions.
4. To introduce time series using moving average method and least square method.

Learning outcomes

1. Understand the operations research methodology and the problem solving approach.
2. Understand what are Mean, Median and Mode and how to calculate it.
3. Understand how all of alternative measures differ and why.
4. Calculate and interpret the correlation between two variables.
5. Determine whether the correlation is significant.
6. Calculate the simple linear regression equation for a set of data and know the basic assumptions behind regression analysis.
7. Determine whether a regression model is significant.
8. Differentiate among simple index numbers, unweighted aggregate price index numbers, weighted aggregate price index numbers, Laspeyres price index numbers, and Paasche price index numbers by defining and calculating each.

Recommended Books:

- 1) Mathematical & Statistical Techniques by Manan Prakashan.
- 2) Mathematical & Statistical Techniques by Dr. Neena Joshi, Dr. N.N. Pandey. Sheth Publication.

Reference Books

1. Operations Research by Gupta and Kapoor Operations Research by Schaum Series
2. Fundamentals of Statistics - D. N. Elhance.
3. Statistical Methods - S.G. Gupta (S. Chand & Co.
4. Statistics for Management - Lovin R. Rubin D.S. (Prentice Hall of India)
5. Statistics - Theory, Method & Applications D.S. Sancheti & V. K. Kapoor.

SEMESTER-I

(OPEN ELECTIVE (OE))		
(For Arts and Commerce Students)		
Title of the Course And Course code	BASIC STATISTICS (PRACTICAL)	No. of Credits: 01
Practical/Lab work to be performed in Computer Lab.		
List of practicals to be done using Excel:		
1. Computation of Measures of Central tendency for raw data.		
2. Computation of Measures of Central tendency for discrete and continuous data.		
3. Computation of Measures of dispersion for raw data.		
4. Computation of Measures of dispersion for discrete and continuous data		
5. Graphical Presentation of data (Histogram, Frequency polygon, Ogives)		
6. Computation of Correlation coefficients		
7. Plotting of scatter diagram		
8. Computation of regression lines		
9. Measurement of trend by method of moving averages.		
10. Measurement of trend by method of least squares.		
11. Measurement of seasonal indices by the method of Ratio to trend.		
12. Computation of index numbers.		
13. Computation of real income.		
14. Computation of weighted and unweighted price index number.		
15. Computation of Lasperye's, Paasche's, Dorbish Bowley's, Marshall-Edgeworth and Fisher's ideal index numbers.		