Commerce Core III (Minor)

Business Statistics and Data Interpretation (Semester-II)

Course Objectives
The course aims to develop amongst the learners the ability to summarise, analyse and interpret quantitative information for business decision making

Course Outcomes
After completion of the course, learners will be able to:

- ✓ Examine and understand the various descriptive properties of statistical data;
- ✓ Evaluate probability rules and concepts relating to discrete and continuous random variables to answer questions within a business context;
- ✓ Analyse the underlying relationships between the variables to use simple regression models;
- ✓ Analyse the trends and tendencies over a period of time through time series analysis;
- ✓ Examine and apply index numbers to real life situations.

Course Outlines
Unit 1: Descriptive Statistics
Measures of Central Tendency: Concept and properties of averages including Arithmetic mean, Median and Mode. Measures of Dispersion: An overview of Range, Quartile Deviation and Mean Deviation; Standard deviation; Variance and Coefficient of variation. Moments: Computation and significance; Skewness; Kurtosis.
Use Microsoft Excel for data analysis and interpretation

Unit 2: Probability and Probability Distributions
Theory and approaches to probability; Probability Theorems: Addition and Multiplication; Conditional probability and Bayes' Theorem. Expectation and variance of a random variable. Discrete Probability distributions: Binomial and Poisson (Properties and Applications). Normal distribution: Properties of Normal curve; Computation of Probabilities and Applications.
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Unit 3: Simple Correlation and Regression Analysis
Correlation Analysis: Meaning and types of Correlation; Correlation Vs Causation; Pearson's coefficient of correlation (computation and properties); Probable and standard errors; Rank correlation.
Regression Analysis: Principle of least squares and regression lines; Regression equations and estimation; Properties of regression coefficients; Relationship between Correlation and Regression coefficients; Standard Error of Estimate.
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Unit 4: Time Series Analysis and Index Numbers
Time Series Data; Components of time series; Additive and Multiplicative models. Trend analysis; Fitting of trend using principle of least squares – linear and second-degree parabola. Shifting of Origin and Conversion of annual linear trend equation to quarterly/monthly basis and vice-versa.
Meaning and uses of index numbers. Construction of Index numbers: Methods of Laspeyres,

Paasche and Fisher's Ideal index.

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Suggested Readings

- ✓ *Anderson, D. R. (2019).Statistics for learners of Economics and Business. Boston, United States: Cengage Learning.*
- ✓ *"Statistics for Management" by Richard I. Levin and David S. Rubin - published by Kalyani Publishers, Cuttack, Odisha.*
- ✓ *Douglas A. Lind, Robert D. Mason, William G. Marchal. (2022).*
- ✓ *Basic Statistics for Business and Economics. New York, United States: Mc-Graw-Hill International editions.*
- ✓ *Gupta, S. C., & Gupta, I. (2018).Business Statistics. Mumbai, India: Himalaya Publishing House.*
- ✓ *Gupta, S. P., & Gupta, A. (2018). Business Statistics: Statistical Methods.*