

Branch Name:	MANAGEMENT
Program Code:	MS201
Course Name:	Statistical Methods for Business
Course Code:	3MS2010103T
Pre-requisite Course:	Basic knowledge of high school mathematics (Algebra) and fundamental understanding of business data.

Course Objectives:

1. To provide students with a comprehensive understanding of statistical tools and techniques for effective business decision-making.
2. To develop the ability to collect, organize, analyze, and interpret data to solve real-world business problems.
3. To equip students with skills to apply probability concepts and inferential statistics for forecasting and risk assessment.
4. To enable students to use statistical software for data analysis and effectively communicate findings to stakeholders

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Mar ks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	-	-	3	50	50	-	-	100

Subject Contents:

Sr No.	Topic	Total Hours	Weightage (%)
1	Introduction to Business Statistics and Data Analysis Meaning, Scope, and Functions of Statistics in Management Types of Data: Primary vs Secondary, Cross-sectional vs Time-series, Nominal, Ordinal, Interval, Ratio. Data Collection Methods and Sampling Techniques (Probability and Non-Probability) Data Presentation: Frequency Distributions, Histograms, Bar Charts, Pie Charts, Ogives. Descriptive Statistics and Measures of Relationships-1 • Measures of Central Tendency: Mean, Median, Mode (with business applications) • Measures of Dispersion: Range, Variance, Standard Deviation, Coefficient of Variation • Measures of Shape: Skewness and Kurtosis (Basic concepts and interpretation)	15	35

2	Descriptive Statistics and Measures of Relationships-2 - Correlation Analysis: Karl Pearson's Coefficient, Spearman's Rank Correlation - Simple Linear Regression: Fitting of Regression Lines, Coefficient of Determination (R^2), Interpretation of Results Probability Concepts and Probability Distributions - Fundamentals of Probability: Sample Space, Events, Rules of Probability (Addition and Multiplication) - Conditional Probability and Bayes' Theorem (Concept and application) - Random Variables: Discrete and Continuous, Expected Value - Discrete Probability Distributions: Binomial Distribution and Poisson Distribution (Properties and business applications) - Continuous Probability Distributions: Normal Distribution, Standard Normal Variate (Z-score), and its applications	15	35
3	Statistical Inference and Decision Making - Sampling Distributions: Concept of Standard Error, Central Limit Theorem - Estimation: Point Estimation and Interval Estimation (Confidence Intervals for Mean and Proportion) - Hypothesis Testing: Null and Alternative Hypothesis, Type I and Type II Errors, Level of Significance, p-value, One-tailed and Two-tailed Tests - Parametric Tests: Z-test (Single Mean, Two Means), t-test (Single Mean, Two Independent Samples) - Non-Parametric Test: Chi-Square Test (χ^2) for Independence of Attributes - Introduction to Time Series Analysis and Forecasting.	15	30

Text Books:

Sr. No.	Books
1	Statistics for Business and Economics by Anderson, Sweeney, and Williams, Cengage Learning.
2	Business Statistics by Ken Black, Wiley Publications.

Reference Books:

Sr. No.	Books
1	Statistics for Management by Richard I. Levin and David S. Rubin
2	Fundamentals of Statistics by S.C. Gupta
3	Business Statistics by J.K. Sharma
4	Complete Business Statistics by Amir D. Aczel and Jayavel Sounder Pandian

List of Open-Source Software/learning website:

- NPTEL: Probability and Statistics for Business (IIT Madras / IIT Kharagpur)
- SWAYAM: Business Analytics and Statistics Courses
- Microsoft Excel: Data Analysis Toolpak (Free with Office)
- R-Project: Open-source statistical software

Journals/Magazines

- Journal of Business & Economic Statistics (American Statistical Association)
- The American Statistician
- Harvard Business Review (Articles on Data-Driven Decision Making)
- Analytics India Magazine
- Economic Times (Data Stories and Analysis Section)

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Define and classify various types of business data, sampling techniques, and statistical methods used in decision-making	Remember, Understand
CLO2	Apply measures of central tendency, dispersion, and correlation to summarize and interpret business data effectively.	Apply
CLO3	Compute probabilities and solve business problems using discrete and continuous probability distributions (Binomial, Poisson, Normal).	Apply
CLO4	Construct confidence intervals and perform hypothesis tests (Z-test, t-test, Chi-square) to draw valid inferences from sample data.	Apply, Analyze
CLO5	Analyze relationships between business variables using regression analysis and predict future outcomes for strategic planning.	Analyze
CLO6	Evaluate and interpret statistical output from software tools to make data-driven recommendations and informed business decisions.	Evaluate

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)								Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CLO1	H	M	-	-	L	-	-	-	H	M
CLO2	H	H	M	L	L	-	-	-	H	H
CLO3	H	H	H	M	L	L	-	-	H	H
CLO4	H	H	H	H	M	L	L		M	H
CLO5	H	H	H	H	M	M	L	L	H	H
CL06	H	H	H	H	H	M	M	L	H	H

H: High, M: Medium, L: Low
