COURSE OBJECTIVES & LEARNING OUTCOMES

SUBJECT : MATHEMATICAL & STATISTICAL TECHNIQUES-I

F.Y.B.COM - SEMESTER I

Sr. No	LEARNING OBJECTIVE	LEARNING OUTCOMES
1)	To give basic knowledge about shares and mutual funds to students.	After completing this topic, students will be able to explain: • Concept of share, face value, market value, dividend, equity shares, preferential shares and bonus shares. • Simple problems on calculation of Net income after considering entry load, dividend, change in Net Asset Value (N.A.V.) and exit load, Averaging of price under the Systematic Investment Plan (S.I.P.)
2)	To acquaint students with the problems related to Permutation, Combination and Linear Programming Problems.	After completing this topic, students will be able to solve problems related to: • Factorial Notation, Fundamental principle of counting, Permutation as arrangement, combination as selection and Examples on commercial application of permutation and combination. • Mathematical Formulation of Linear Programming Problems up to 3 variables.
3)	To help students to solve different types of problems from Measures of Central Tendencies and dispersions.	After completing this topic, students will be able to solve problems associated with: • 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. • Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance and Combined Variance.
4)	To Build an understanding of the fundamental concept of Probability Theory.	After completing this topic, students will be able to explain: • Mutually Exclusive and Exhaustive Events, Complimentary events. Classical definition of Probability, Addition theorem, conditional

		probability and Independence of Events: $P(A \cap B) = P(A) P(B)$. • Probability distribution of a discrete random variable; Expectation and Variance of random variable.
5)	To Build an understanding of Decision Theory.	After completing this topic, students will be able to solve examples connected with: • Maximin, Maximax, Minimax regret and Laplace criteria. • Expected Monetary Value (EMV), Decision Tree and Expected Opportunity Loss (EOL)

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1)	To acquaint students with the problem associated with Functions, Derivatives and Their Applications.	After completing this topic, students will be able to solve examples connected with: • Demand, Supply, Total Revenue, Average Revenue, Total cost, Average cost and Profit function. Equilibrium Point and Break-even point. • Derivative, Marginal Cost, Marginal Revenue, Elasticity of Demand, Maxima and Minima for functions in Economics and Commerce.
2)	To familiarize students with the problems associated with Interest and Annuity.	After completing this topic, students will be able to solve sums related to: • Simple Interest and Compound Interest. • Annuity Immediate and its Present value, Future value, Equated Monthly Instalment's (EMI) using reducing balance method & amortization of loans.
3)	To acquaint students with the problems of Bivariate Linear Correlation and Regression.	Upon completion, students will get acquaint to work with the problems associated with: • Scatter diagram, Karl Pearson's method of Correlation Coefficient and Spearman's Rank Correlation Coefficient.

		• Regression Coefficients, Relationship between Coefficient of Correlation and Regression Coefficients, Finding the equations of Regression lines by method of Least Squares.
4)	To familiarize students with the Time series and Index Numbers problems.	Upon completion, students will get acquaint to work with the problems associated with: • Trends using Moving Average Method and Least Squares Method, Estimation of Seasonal Component and Concept of Forecasting using Least Squares Method. • Aggregate and Relative Index Numbers, Lasperye's, Paasche's, Dorbisch-Bowley's, Marshall-Edgeworth and Fisher's ideal index numbers, Chain Base Index Nos. Shifting of Base year, Cost of Living Index Numbers, Concept of Real Income and Concept of Wholesale Price Index Number
5)	To Build an understanding of Elementary Probability Distributions.	After completing this topic, students will be able to explain: • Discrete Probability Distribution: Binomial and Poisson distribution. • Continuous Probability distribution: Normal Distribution.