

SYLLABUS 2020 - 2021

STANDARD- 12

**SUBJECT: BUSINESS MATHEMATICS &
STATISTICS**

UNIT	CONTENTS
1. Applications of Matrices and Determinants	1.1 Rank of a Matrix 1.1.1 Concept 1.1.2 Elementary Transformations and Equivalent matrices 1.1.3 Echelon form and finding the rank of the matrix (up to the order of 3×4) 1.1.4 Testing the consistency of non-homogeneous linear equations (two and three variables) by rank method. 1.3 Transition Probability Matrices 1.3.1 Forecasting the succeeding state when the initial market share is given
2. Integral Calculus - I	2.1 Indefinite Integrals 2.1.1 Concept of Indefinite Integral 2.1.2 Two important properties of Integral Calculus 2.1.3 Integration by decomposition 2.1.4 Integration by parts 2.2 Definite integrals 2.2.1 The fundamental theorems of Integral Calculus 2.2.2 Properties of definite integrals
3. Integral Calculus - II	3.1 The area of the region bounded by the curves 3.1.1 Geometrical Interpretation of Definite Integral as Area under a curve 3.2 Application of Integration in Economics and Commerce. 3.2.1 Cost functions from marginal cost functions 3.2.2 Revenue functions from Marginal revenue functions 3.2.3 The demand functions from elasticity of demand 3.2.4 Consumer's surplus 3.2.5 Producer surplus
4. Differential Equations	4.1 Formation of ordinary differential Equations

	<ul style="list-style-type: none">4.1.1 Definition of ordinary differential equation4.1.2 Order and degree of a differential equation4.1.3 Formation of ordinary differential equation:4.2 First order and first degree differential equations<ul style="list-style-type: none">4.2.1 General solution and particular solution4.2.2 Differential Equation in which variables are separable4.2.3 Homogeneous Differential Equations
5. Numerical Methods	<ul style="list-style-type: none">5.1 Finite Differences<ul style="list-style-type: none">5.1.1 Forward Difference Operator, Backward Difference Operator and Shifting Operator5.1.2 Finding the missing terms5.2 Interpolation<ul style="list-style-type: none">5.2.1 Methods of interpolation5.2.2 Graphical method5.2.3 Algebraic method
6. Random Variable and Mathematical Expectation	<ul style="list-style-type: none">6.1. Random variable<ul style="list-style-type: none">6.1.1 Definition of a random variable6.1.2 Discrete random variable6.1.3 Continuous random variable6.2. Mathematical Expectation<ul style="list-style-type: none">6.2.1 Expected value and Variance6.2.2 Properties of Mathematical expectation
7. Probability Distributions	<ul style="list-style-type: none">7.1 Distribution<ul style="list-style-type: none">7.1.1 Binomial distribution7.1.2 Poisson Distribution
8. Sampling Techniques and Statistical Inference	<ul style="list-style-type: none">8.1 Sampling<ul style="list-style-type: none">8.1.1 Basic concepts of sampling8.1.2 Sampling and Non-Sampling Errors:8.1.3 Sampling distribution8.1.4 Computing standard error in simple cases8.2 Estimation:<ul style="list-style-type: none">8.2.1 Point and Interval Estimation
9. Applied Statistics	<ul style="list-style-type: none">9.1 Time Series Analysis<ul style="list-style-type: none">9.1.1 Meaning, Uses and Basic Components9.1.2 Measurements of Trends9.1.3 Method of Moving Averages9.1.4 Method of Least Squares9.1.5 Methods of measuring Seasonal Variations By Simple Averages

	<p>9.2 Index Number 9.2.1 Meaning, Classifications and Uses 9.2.2 Weighted Index Number 9.2.3 Test of adequacy for an Index Number 9.2.4 Construction of Cost of Living Index Number</p>
10. Operations Research	<p>10.1 Transportation Problem 10.1.1 Definition and formulation 10.1.2 Methods of finding initial Basic Feasible Solutions 10.3 Decision Theory 10.3.1 Meaning 10.3.2 Situations- Certainty and uncertainty 10.3.3 Maximin and Minimax Strategy</p>

