

Course Code: 510107	Marks: 100	3 Credits	Class Hours: 45
Course Title:	Business Mathematics		

- Number System:** Introduction, Real Number Systems, Absolute Value of a Number, Special Properties of Zero. Fractions, Complex and Imaginary Number, Sequence and Series, Sigma Notation, Principles of Mathematical Indication, Sum of Natural Number, Relations and Functions, Business Application.
- Indices and Logarithms:** Introduction, Index and Base of a Number, Law of Indices, Meaning of a^mPositive and Fractional Indices, Operation with Power Functions. Logarithm, Anti-Logarithm, Laws of Logarithms, Common Logarithm, Natural Logarithm, Characteristics and Mantissa.
- Theory of Sets:** Definition of a Set, Methods of Describing a Set, Types of Sets, Operation on Sets, Venn Diagram, De-Morgan's Laws, Cartesian Product of Two Sets, Business Applications.
- Linear and Quadratic Equations:** *Liner Equations:* Equation and Identity, Linear Equations, Degree of an Equation, Solution of an Equation, Linear Simultaneous Equations with Two Variables, Linear Inequalities, Business Applications. *Quadratic Equations:* Nature of the roots of a Quadratic Equation, Relationship between Roots and Coefficients of a Quadratic Equation, Formation of Quadratic Equation with Given Roots. Business Application.
- The Straight Lines:** Abscissa and Ordinate of a Point, Rectangular Coordinates, Distance Between Two Points, Coordinates of Mid-Point, Division or Section Formula, Centroid of a Triangle, Area of a Triangle, Polar Coordinates, Relation between Polar and Cartesian Coordinates of a Point, Straight Line and Standard form of Its Equations, General Equation of a Straight Line, Intersection of Two Straight Lines, Condition for Concurrent of the Three Straight Lines, Angle between Two Straight Lines, Equation of a straight line passing through two points, Cost equation, Business Applications.
- Permutations and Combinations:** Fundamental Principles of Permutations, Permutations of Things which are and are not All Different, Circular Permutations. Combinations, Relations, Relation between Permutation and Combination, Business Applications.
- Mathematics of Finance:** Interest, Simple Interest, Compound Interest, Nominal and Effective Rates of Interest, Continuous Compounding, Discounting, Depreciation, Annuity, Derivation of Different Types of Annuity, Amortization and Sinking Funds, Business Applications.
- Matrices and Determinants:** Definition of a Matrix, Types of Matrices, Algebra of Matrices, Inverse of a Square Matrix, Solving System of Linear Equations by Matrix Method, Determinants of a Square Matrix, Cramer's Rule to Solve System of Linear Equations.

Recommended Books:

- Gordon D Pritchett and John C Saber (1986). *Mathematics with application in management & economics, 67th Edition*, Irwin Inc.
- Islam, Md. Rafiqul & Gani, Mohammad, Osman, (2017). *Business Mathematics, 5th Edition*, CBO Publications, Dhaka