Unit 1: Algebra

1. **Introduction to Algebra**
    - Definition and importance of algebra in mathematics and real-life applications.
2. **Variables and Constants**
    - Understanding variables, constants, coefficients, and their roles in algebraic expressions.
3. **Expressions and Equations**
    - Simplifying algebraic expressions.
    - Solving linear and quadratic equations.
4. **Linear Equations in One Variable**
    - Formulating and solving single-variable linear equations.
5. **Linear Equations in Two Variables**
    - Graphing linear equations.
    - Finding points of intersection.
6. **Quadratic Equations**
    - Solving quadratic equations by factoring, completing the square, and the quadratic formula.
7. **Polynomials**
    - Definition, types, and operations on polynomials.
8. **Factorization**
    - Techniques for factoring algebraic expressions.
9. **Simplification**
    - Simplifying complex algebraic expressions.
10. **Applications of Algebra**
    - Real-world problems involving algebraic concepts.

Unit 2: Geometry

1. **Basics of Geometry**

- Points, lines, planes, and angles.

2. **Lines and Angles**
    - Types of angles and properties of parallel and perpendicular lines.
3. **Triangles and Their Properties**
    - Classification of triangles.
    - Pythagorean theorem.
4. **Quadrilaterals and Other Polygons**
    - Properties of squares, rectangles, parallelograms, and other polygons.
5. **Circles**
    - Parts of a circle, circumference, and area calculations.
6. **Area and Volume**
    - Calculating the area and volume of various geometric shapes.
7. **Coordinate Geometry**
    - Plotting points, distance formula, and slope of a line.
8. **Transformations**
    - Translation, rotation, reflection, and scaling of geometric figures.
9. **Congruence and Similarity**
    - Criteria for congruent and similar figures.
10. **Geometric Constructions**
    - Using compass and straightedge for geometric constructions.

Unit 3: Trigonometry

1. **Introduction to Trigonometry**
    - Basics and historical background of trigonometry.
2. **Trigonometric Ratios**
    - Sine, cosine, and tangent ratios.
3. **Trigonometric Identities**
    - Fundamental identities and their applications.

4. **Heights and Distances**
    - Solving real-life problems using trigonometric principles.
5. **Trigonometric Equations**
    - Solving various trigonometric equations.
6. **Applications of Trigonometry**
    - Use of trigonometry in engineering, physics, and other fields.
7. **Graphs of Trigonometric Functions**
    - Plotting and analyzing sine, cosine, and tangent graphs.
8. **Inverse Trigonometric Functions**
    - Understanding and solving inverse trigonometric functions.
9. **Trigonometric Formulas**
    - Sum and difference formulas, double-angle formulas, etc.
10. **Trigonometric Tables**
    - Utilizing trigonometric tables for calculations.

Unit 4: Calculus

1. **Limits and Continuity**
    - Understanding limits, continuity, and their significance in calculus.
2. **Differentiation**
    - Techniques of differentiation and applications.
3. **Applications of Differentiation**
    - Finding maxima, minima, and solving optimization problems.
4. **Integration**
    - Indefinite and definite integrals, integration techniques.
5. **Applications of Integration**
    - Calculating areas, volumes, and solving real-world problems.
6. **Differential Equations**
    - Introduction to solving basic differential equations.

7. **Sequences and Series**
    - Understanding arithmetic and geometric sequences and series.
8. **Partial Derivatives**
    - Basics of partial differentiation and applications.
9. **Multiple Integrals**
    - Double and triple integrals with applications.
10. **Vector Calculus**
    - Introduction to vectors and their calculus applications.

Unit 5: Statistics and Probability

1. **Introduction to Statistics**
    - Basics of statistical data and its importance.
2. **Data Representation**
    - Graphical representation of data: bar graphs, histograms, pie charts, etc.
3. **Measures of Central Tendency**
    - Mean, median, mode, and their applications.
4. **Measures of Dispersion**
    - Range, variance, standard deviation, and interquartile range.
5. **Probability Concepts**
    - Fundamental probability principles and rules.
6. **Random Variables**
    - Discrete and continuous random variables.
7. **Probability Distributions**
    - Normal distribution, binomial distribution, etc.
8. **Sampling Techniques**
    - Various sampling methods and their importance in statistics.
9. **Hypothesis Testing**
    - Formulating and testing hypotheses using statistical methods.

10. **Regression and Correlation**
    - Understanding relationships between variables.

Unit 6: Linear Algebra

1. **Vectors and Vector Spaces**
    - Definition, operations, and properties of vectors.
2. **Matrix Algebra**
    - Types of matrices, matrix operations, and applications.
3. **Determinants**
    - Calculating determinants and their significance.
4. **Eigenvalues and Eigenvectors**
    - Understanding eigenvalues, eigenvectors, and their applications.
5. **Linear Transformations**
    - Concepts and properties of linear transformations.
6. **Systems of Linear Equations**
    - Solving systems using various methods: substitution, elimination, matrix methods.
7. **Inner Product Spaces**
    - Understanding inner products and orthogonality.
8. **Orthogonality**
    - Orthogonal vectors and their applications.
9. **Diagonalization**
    - Diagonalizing matrices and its significance.
10. **Applications of Linear Algebra**
    - Use cases in computer science, engineering, and more.