

**TELANGANA STATE BOARD OF INTERMEDIATE EDUCATION,
HYDERABAD**

MATHEMATICS – IB

SYLLABUS

(w.e.f. 2012-13)

COORDINATE GEOMETRY

1. Locus

- 1.1 Definition of locus - Illustrations
- 1.2 To find equations of locus-Problems connected to it

2. Transformation of Axes

- 2.1 Transformation of axes - Rules, Derivations and Illustrations
- 2.2 Rotation of axes - Derivations – Illustrations

3. The Straight Line

- 3.1 Revision of fundamental results
- 3.2 Straight line-Normal form-Illustrations
- 3.3 Straight line - Symmetric form
- 3.4 Straight line-Reduction into various forms
- 3.5 Intersection of two Straight lines
- 3.6 Family of straight lines -Concurrent lines
- 3.7 Condition for Concurrent lines
- 3.8 Angle between two lines
- 3.9 Length of perpendicular from a point to a line
- 3.10 Distance between two parallel lines
- 3.11 Concurrent lines - properties related to a triangle

4. Pair of Straight Lines

- 4.1 Equations of pair of lines passing through origin, angle between a pair of lines
- 4.2 Condition for perpendicular and coincident lines, bisectors of angles
- 4.3 Pair of bisectors of angles
- 4.4 Pair of lines - second degree general equation.
- 4.5 Conditions for parallel lines - distance between them, Point of intersection of pair of lines
- 4.6 Homogenising a second degree equation with a first degree equation in x and y

5. Three Dimensional Coordinates

- 5.1 Coordinates
- 5.2 Section formulas - Centroid of a triangle and tetrahedron

6. Direction Cosines and Direction Ratios

- 6.1 Direction Cosines
- 6.2 Direction Ratios

7. Plane

- 7.1 Cartesian equation of Plane - Simple Illustrations CALCULUS

8. Limits and Continuity

- 8.1 Intervals and neighbourhoods
- 8.2 Limits *•
- 8.3 Standard Limits
- 8.4 Continuity

9. Differentiation

- 9.1 Derivative of a function
- 9.2 Elementary Properties
- 9.3 Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Function - Derivatives.
- 9.4 Methods of Differentiation
- 9.5 Second Order Derivatives

10. Applications of Derivatives

- 10.1 Errors and Approximations
- 10.2 Geometrical interpretation of a derivative
- 10.3 Equations of tangents and normals
- 10.4 Lengths of tangent, normal, sub tangent and subnormal.
- 10.5 Angle between two curves and condition for orthogonality of curves
- 10.6 Derivative as Rate of change
- 10.7 Rolle's Theorem and Lagrange's Mean value theorem without proofs and their geometrical interpretation
- 10.8 Increasing and decreasing functions
- 10.9 Maxima and Minima