

**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