

BOARD OF INTERMEDIATE EDUCATION:AP:HYDERABAD

The Subject Committee suggested the following changes in the Mathematics syllabus for Intermediate First year (Bridge Course w.e.f. 2013-14)

PAPER – I

	No. of Periods
I. <u>Algebra</u>	
1. Matrices	06
II. <u>Vector Algebra</u>	
2. Addition of Vectors	09
3. Multiplication of Vectors	09
III. <u>Trigonometry</u>	
4. Trigonometric Functions	09
IV. <u>Co-Ordinate Geometry</u>	
5. The Straight line	09
6. Three dimensional Co-ordinates	05
V. <u>Calculus</u>	
7. Functions, Limits and Continuity	10
8. Differentiation	10
9. Application of Differentiation	08
Total No. of Periods	<hr/> 75 <hr/>

Detailed syllabus of Paper-I is enclosed herewith after incorporating necessary changes.

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BRIDGE COURSE

MATHEMATICS – I

(for Bi,P.C. Students w.e.f. 2013-14)

DETAILED SYLLABUS

I. ALGEBRA (6 Periods)

1. Matrices:

- 1.1 Determinant of a matrix - properties - singular and non - singular matrices.
- 1.2. Adjoint and inverse of a matrix - properties. Statement of theorems (without proof)
- 1.3. Solutions of simultaneous linear equations in two and three variables - Cramer's method – Matrix inversion method.

II. VECTOR ALGEBRA (18 periods)

2. Addition of vectors:

- 2.1. Introduction and definition of a vector as a directed line segment.
- 2.2. Types of vectors - collinear, parallel, like, unlike, coplanar and non - coplanar vectors etc.,
- 2.3. Addition of vectors - properties -
- 2.4. Scalar multiplication of a vector –
- 2.5. Angle between two non - zero vectors - section formulae - centroid of a triangle.
- 2.6. Linear combination, linearly dependent and independent system of vectors
- 2.7. Orthonormal unit triad - modulus of a vector etc.
- 2.8. Vector equations of line and plane.

3. Multiplication of vectors:

- 3.1. Scalar Product of two vectors, geometrical interpretation, orthogonal projection, properties of scalar product.
- 3.2. Simple identities on scalar product.
- 3.3. Vector product - Geometrical interpretation - properties
- 3.4. Vector area of triangle and parallelogram - simple problems.

III TRIGONOMETRY (9 periods)

4. Trigonometric Functions:

- 4.1. Trigonometric ratios of compound angles
- 4.2. Multiple and sub multiple angles -
- 4.3. Transformations.

(Simple Problems related to results without proofs)

IV. COORDINATE GEOMETRY (04 periods)

5. The Straight line:

- 5.1. Equations of a straight line in different forms -
- 5.2. Angle between two lines - conditions for parallel and perpendicular lines.
- 5.3. Concurrent lines - point of concurrence and condition for concurrency of three lines.
- 5.4. Foot of the perpendicular and image relations (no proofs) - simple problems.

6. Three dimensional coordinates:

- 6.1. Coordinate planes - coordinates of a point - Distance between two points in space.
- 6.2. Direction cosines and direction ratios of a line - angle between two lines - (without proofs).

V. CALCULUS (28 periods)

7. Functions, limits and continuity:

- 7.1. Types of functions - graphs of $|x|$, $\frac{|x|}{x}$, $[x]$, e^x , \log^x functions - domain and range –
- 7.2. Definition of limit - left hand and right hand limits - properties (without proofs).
- 7.3. Standard limits - (no proofs)
- 7.4. Continuity and discontinuity of functions - simple illustrations.

8. Differentiation:

- 8.1. Definition of a derivative - some elementary results on differentiation - various functions.
- 8.1. Methods of differentiation - sum, difference, product and quotient rules (without proofs).

9. Applications of differentiation:

- 9.1. Geometrical interpretation of a derivative – Tangent and normal equations at a point - length of tangent, normal, sub tangent, sub normal.
- 9.2. Angle between two curves - orthogonality of curves.
- 9.3. Behaviour of functions - increasing and decreasing nature.
- 9.4. Extremum values - maxima and minima (only simple problems).
