No. __1665__ / dt. 26·07·23

To

Principals of All Polytechnics,
(Both Govt. & Private)

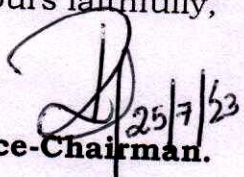**Sub: Revised Bridge Course Syllabus effective for 1st Semester students from Academic Session 2023-24.**

Sir/ Madam,

In inviting a reference to the above cited subject, the Revised Bridge Course Syllabus effective for 1st Semester students from Academic Session 2023-24 is enclosed herewith for implementation at your end.

There will be 4 periods of theory class every day in the 1st half which should be interactive sessions. The 2nd half will be utilized for other activities so as to generate interest among students towards the Diploma courses. The syllabus is to be completed in 2 weeks time.

Encl: As above.

Yours faithfully,

25/7/23

Vice-Chairman.

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Bridge Course Syllabus of Mathematics

Aim:

To bridge up the gap between 10th standard and Diploma Course Mathematics.

Objective:

The students will be able to understand the fundamentals of Mathematics.

Topic wise distribution of Periods:

Sl. No.	Topics	Periods
1	Basic Terminologies	01
2	Algebra	09
3	Trigonometry	05
4	Co-ordinate Geometry	03

1. **Basic Terminologies:**
   Angle, Arc, Radius, Hypotenuse, Height, Base, Perpendicular, Point, Co-linear Points, Straight Line, Triangle, Median, Centroid, Circle, Centre, Diameter, Sphere, Plane, Rectangle, Square, Parallelogram, Rhombus, Cuboid, Cube, Equation, Linear Equation, Quadratic Equation, Polynomial, Root, Length, Area, Volume etc.

2. **Algebra:**
   2.1 Algebraic formulas
   $$(a + b)^2, (a - b)^2, (a + b)^3, (a - b)^3, a^2 - b^2, a^3 + b^3, a^3 - b^3 \ etc.$$
   2.2 Solution of simultaneous linear equation involving two variables
   $$a_1 x + b_1 y + c_1 = 0 \ , a_2 x + b_2 y + c_2 = 0$$
   2.3 Quadratic Equation
   Quadratic Equation and its solution.
   2.4 Concepts of Polynomials with factorization (Including Polynomial Division)
   2.5 Law of Indices
   $$a^m . a^n = a^{m+n}$$
   $$\frac{a^m}{a^n} = a^{m-n} \ , (a^m)^n = a^{mn}, a^0 = 1, a^{-n} = \frac{1}{a^n}$$
   2.6 Properties of Logarithm
   $$\log x + \log y = \log(xy), \log x - \log y = \log\left(\frac{x}{y}\right), \log x^m = m \log x \, , \log_b a = \frac{\log_c a}{\log_c b},$$
   $$\log_a a = 1, \log_a 1 = 0.$$

   2.7 Basic concepts of Set Theory and Number System(including algebra of Real Numbers)
   2.8 Relation and Function
   Fundamental concepts of Relations and Functions (including Domain and Range) and Graphs of simple functions.

3. **Trigonometry:**

3.1 Trigonometric ratios in terms of Perpendicular, Base and Hypotenuse, Reciprocal of six trigonometric ratios, Trigonometric table, Quadrants (ASTC rule), Trigonometric identities($sin^2\theta + cos^2\theta = 1, sec^2\theta - tan^2\theta = 1, cosec^2\theta - cot^2\theta = 1$).

3.2 Compound Angle

$$\sin(A + B), \sin(A - B), \cos(A + B), \cos(A - B), \tan(A + B), \tan(A - B),$$

$$\sin C + \sin D, \sin C - \sin D, \cos C + \cos D, \cos C - \cos D \ etc.$$

3.3 Multiple Angle

$$\sin 2A, \cos 2A, \tan 2A, \sin 3A, \cos 3A, \tan 3A \ etc.$$

4. **Co-ordinate Geometry:**

4.1 Introduction to Cartesian co-ordinate system

4.2 Distance between two points (derivation and applications)

4.3 Section Formula (Internal division and External division)

Bridge Course Syllabus of **Physics**

Topic wise distribution of Periods: **Total Periods-12**

Sl. No.	Topics	Periods
1	Terminology and Translation of Physical Quantities Commonly Used	01
2	Basic Concepts to be explained	03
3	Fundamental Concepts Of Mechanics	04
4	Fundamental Concepts of Electricity & Magnetism	04

Unit 1   1 Period

Terminology and Translation of Physical Quantities Commonly Used:

Mass, Length, Time, Speed, Distance, Velocity, Displacement, Acceleration, Force, Momentum, Work, Power, Energy (Kinetic Energy & Potential Energy), Friction, Pressure, Density, Area, Volume, Temperature & Heat.

Unit 2   3 Periods

Basic Concepts to be explained:

Mass, Length, Time, Distance, Displacement, Speed, Velocity, Acceleration, Retardation ,Force, Momentum, Work, Power, Energy (Kinetic Energy & Potential Energy), Friction, Pressure, Density, Area, Volume, Temperature & Heat.

Unit 3   4 Periods

Fundamental Concepts Of Mechanics

- I. Concept of rest & motion
- II. Equations of motion along a straight line for constant acceleration (no derivation) , basic concepts only
- III. Newton's Laws of motion (Basic concept only)
- IV. Resolution of force & its components

Unit 4   4 Periods
Fundamental Concepts of Electricity & Magnetism

- I. Basic concepts of charge, force, electric field, electric potential, electric current, resistance, Ohm's Law
- II. Basic concepts of Magnetism, force between the two poles

Bridge Course Syllabus of ENGLISH

Topic wise distribution of Periods: **Total Periods-10**

Sl. No.	Topics	Periods
1	Listening skill	03
2	Speaking skill	03
3	Reading skill	02
4	Writing skill	02

1. Listening skill.   (03 Periods)

1.1-Listening to passages, speeches, dialogues, stories.

1.2- Recollect the information they have gathered.

2. Speaking skill.   (03 Periods)

2.1-Self-introduction.

2.2-Role-play.

2.3-Sharing personal experiences.

3. Reading skill.   (02 Periods)

3.1- Reading aloud of given texts (passages of different areas of study, articles from newspaper) focusing on intonation.

4. Writing skill .   (02 periods)

4.1- Describing persons, situations and pictures.

4.2- Developing any given idea within 150 words.

Bridge Course of Chemistry

Total Periods-8

Topic wise distribution of Periods:

Sl. No.	Topics	Periods
1	Terminology Translation	01
2	Symbol & Valency	01
3	Radicals	02
4	Formula	01
5	Basic Concepts of Atomic Structure	03

1. **Terminology Translation.**   (01 Period)
   - I. Atom, Molecule, Element, Compound & Mixture.
   - II. Symbol, Valency, Formula, Atomic Number, Atomic Mass & Molecular Mass.
   - III. Chemical Equation, Chemical Bond, Electrovalent Bond, Covalent Bond & Coordinate Bond.
   - IV. Acid, Base, Salt, Solute, Solvent, Solution, Concentration & Neutralization
   - V. Metallurgy, Ore, Mineral & Alloy.

2. **Symbol & Valency**   (01 Period)
   - I. Symbol of Elements.
   - II. Concept of Valency.

3. **Radicals**   (02 Periods)
   - I. Definition & Classification of Radicals with examples.

4. **Formula**   (01 Period)
   - I. Steps to write Chemical Formula & Names of Compounds.

5. **Basic Concepts of Atomic Structure.**   (03 Periods)
   - I. Discovery of Electron, Proton & Neutron.
   - II. Atomic Number & Mass Number of elements.