साप्ताहिक विच्छेदित पाठ्यक्रम

मई 2024-मार्च 2025

कक्षा-11

विज्ञान संकाय

एकीकृत शैक्षणिक कैलेंडर 2024 के साथ समन्वित

सम्बंधित दस्तावेज एवं शैक्षणिक सामग्री के लिए QR कोड को SCAN करें।

झारखण्ड शैक्षिक अनुसंधान एवं प्रशिक्षण परिषद्, राँची
Jharkhand Council of Educational Research and Training, Ranchi

साप्ताहिक विच्छेदित पाठ्यक्रम

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झारखण्ड शैक्षिक अनुसंधान एवं प्रशिक्षण परिषद्, राँची
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Maths

Month	Week	Name of Chapter	Sub Topic	Learning Outcome
May (17 days) & June (16 days)	May 1st, 2nd, 3rd, 4th & 5th (17 days)	1. Sets	1.1 Introduction 1.2 Sets and their Representation 1.3 The empty Set, 1.4 Finite and Infinite Sets 1.5 Equal Sets 1.6 Sub Sets 1.7 Universal Set 1.8 Venn Diagrams 1.9 Operations on Sets 1.10 Complement of a set	Able to : i. Define sets and justify that the given collection of objects is a set. ii. Write the sets in roster form and set builder form. iii. Convert roster form to set builder form and vice versa. iv. Define empty sets, finite and infinite sets. v. Understand the concept of equality of two sets. vi. Define subsets of a set. vii. Write subsets of a given set. viii. Understand the subsets of a set of real number. ix. Write the interval as a subset of real number. x. Understand the concept of universal sets. xi. Define operation on sets and examine their properties (union, intersection, difference) xii. Draw venn diagram of most of the relationships between sets. xiii. Write complement of a set. xiv. Verify some properties of complement of sets
	June 1st, 2nd & 3rd (6 days)	2. Relations and Functions.	2.1 Introduction 2.2 Cartesian Product of sets 2.3 Relations 2.4 Functions	Able to: Define ordered pair. Find Cartesian product of two sets and three sets. Define relation between two sets. Find domain, co domain and range of a relation. Depict the relation using an arrow diagram. Write relation in set builder and roster form. Define function. Identify the relation as a function. Find domain, co domain and range of a function. Understand and draw graph of some special type of function. Solve the problems based on algebra of real functions.
	June 4th & 5th (10 days)	3. Trigonometric Functions	3.1 Introduction 3.2 Angles 3.3 Trigonometric Functions 3.4 Trigonometric Functions of Sum and Difference of two angles	Able to : Define angle, positive angle and negative angle. Understand degree measure and radian measure. Relate degree measure and radian measure. Establish the relation Qc = l/r and use it to solve daily life problems. Understand the concept of trigonometrical function and their sign in all four quadrants. Find domain and range of trigonometric function. Draw the graph of trigonometric functions in certain quadrant when one trigonometrical function is given. Evaluate the trigonometrical functions of angle in the form of (Evaluate the trigonometrical functions of angle in the form of (, (2n + 1) Derive expressions for trigonometric functions of the sum and difference of two angles and related expressions

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Month	Week	Name of Chapter	Sub Topic	Learning Outcome
July (25 days)	1st, 2nd ,3rd, 4th & 5th	12. Limits and Derivatives	12.1 Introduction 12.2 Intutive Idea of Derivatives 12.3 Limits 12.4 Limits of Trigonometric Functions 12.5 Derivatives	Able to : Identify the indeterminate form. Understand the concept of Right Hand Limit and Left Hand Limit. Verify the existence of limit. Evaluate the limits of algebraic function. Evaluate the limits of trigonometrical function. Find the derivative of a function from first principle. Find the derivative of a function at a point. Apply fundamental rules of differentiation to find out the derivative of given function. Use product and quotient rule of differentiation to find out the derivative of given function.
August (24 days)	1st, 2nd & 3rd (14 days)	4. Complex Number and Quadratic Equations	4.1 Introduction. 4.2 Complex Number 4.3 Algebra of Complex Numbers 4.4 The modulus and the conjugate of a complex number 4.5 Argand plane and Polar Representaion	Able to : Define imaginary numbers. Understand complex number. Identify real and imaginary parts of complex number. Express the given any complex number in the form of a+ib Use algebra of compex numbers. Find modulus, conjugate and multiplicative inverse of a complex number. Represent the given complex number in argand plane. Understand the geometrical meaning of modulus and conjugate of complex number.
	4th & 5th (10 days)	5. Linear Inequalities	5.1 Introduction. 5.2 Inequalities 5.3 Algebraic Solution of Linear inequalities in one variable and their graphical representation	Able to : Understand the concept of inequalities. Define linear inequalities in one and two variables. State rules for solving linear inequality. Solve linear inequation in one variable.
September (20 days)	1st, 2nd & 3rd (10 days)	6. Permutations and Combinations.	6.1 Introduction. 6.2 Fundamental Principle of counting 6.3 Permutations 6.4 Combinations	Able to : State fundamental principle of counting and use it to solve different daily life problems. Understand and factorial notations. Define permutation and derive the formulae for the permutation of n distinct objects taking “r” at a time. Use the formulae of n pr to solve different types of problems. Find the permutation when all the objects are not distinct objects. Define combination and obtain the formulae for finding the number of combinations of n different objects r at a time (ncr). Establish the relation between npr and ncr Use concept of permutation and combination to solve daily life problems.
	4th, 5th & 6th (10 days)	7. Binomial Theorem	7.1 Introduction. 7.2 Binomial Theorem for positive integral indices.	Able to : Understand the Pascal’s triangle. Prove the binomial theorem for any positive integer n. Expand the given expression by using binomial theorem. Compute (96)3, (102)3, (1.01)1000 etc by using binomial theorem. Find the coefficient of xr in the expansion of (x+a)n and solve word problem related with it. Find term independent of x in expansion like (3/2x2 – 1/3x)6.

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October (21 days)	1st, 2nd & 3rd (12 days)	8. Sequences and Series	8.1 Introduction 8.2 Sequences 8.3 Series 8.4 Geometric progression (G.P) 8.5 Relationship between A.M and G.M	Able to : Define Sequence and Series. Define Geometric Progression. Derive the formulae of nth term of a G.P. and sum to n terms of a G.P. Solved problems based on nth term and sum of n terms of G.P. Find geometric means between two given numbers. Establish relationship between A.M and G.M To insert n A.M's between two given number. To insert n G.M's between two given number.
	4th & 5th (9 days)	9. Straight Lines.	9.1 Introduction 9.2 Slope of a line 9.3 Various Forms of the equation of a line. 9.4 Distance of a point from a line.	Able to : Recall distance formula, section formula, area of a triangle. Define angle of inclination and slope of a line. Find slope of a line when coordinates of two points on the line is given. Establish the condition for parallelism and perpendicularity in terms of their slope. Find angle between two lines. Prove co linearity of three points using slope of a line. Formulate various forms of equation of lines and solved problems based on it. Convert general equation of line in (a) slope – inrespect form (b) intercept form (c) normal form. Find distance of a point from a line. Find distance between two parallel lines.
November (21 days)	1st, 2nd, 3rd, 4th & 5th (21 days)	10. Conic Sections	10.1 Introduction 10.2 Sections of a cone 10.3 Circle 10.4 Parabola 10.5 ellipse 10.6 Hyperbola	Able to : Understand section of cone and obtain different kinds of conic sections i.e. Circle, parabola, ellipse and hyperbola, Define the equation of circle in standard form. Derive the equation of circle in standard form. Find the centre and radius from the given equation of circle. Find the equation of circle under given different conditions. Define parabola and derive the equation in standard form. Find the coordinate of focus and vertex, equation of axis and directrix and length of latus rectum from the standard equation of parabola. Find the equation of parabola under given geometrical condition. Define ellipse and derive the equation in standard form. Find the coordinate of foci and vertices, length of major and minor axis, eccentricity and length of latus rectum. Find the equation of ellipse under given conditions. Define hyperbola and derive the equation of hyperbola in standard form. Find the coordinate of foci and vertices, length of conjugate and transverse axis, eccentricity and length of lotus rectum from the given equation of hyperbola in standard form. Apply the concept of conic sections to solve different day to day life problems.

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Month	Week	Name of Chapter	Sub Topic	Learning Outcome
December (19 days)	1st & 2nd (6 days)	11. Introduction to three Dimensional Geometry	11.1 Introduction 11.2 Coordinate Axes and Coordinate Planes in Three Dimensional Space. 11.3 Coordinates of a point in space. 11.4 Distance between two points.	Able to: Understand Coordinate axis and Coordinate plane and octants in three dimensional space. Define the Coordinates of a point in space. Name the octants in which the point lies. Find distance between two points. Find the coordinate of centroid of a triangle.
	3rd (6days)	14. Probability	14.1 Event 14.2 Axiomatic Approach to Probability	Able to: Define an event. Classify the different types of event. Describe probability of an event through axiomatic approach. Find the probability of an event. Find the probability of the event 'A' or event 'B'. Find the probability of the event 'not A'.
	4th, 5th & 6th (8days)	13. Statistics	13.1 Introduction. 13.2 Measures of Dispersion 13.3 Range 13.4 Mean Deviation. 13.5 Variance and Standard Deviation	Able to : Find the mean deviation about the mean for an ungrouped data and grouped data. Find the ,ean deviation about the median for an ungrouped data and grouped data. Find the variance and standard deviation for an ungrouped and grouped data.
January (20 days) February (20 days) March (21 days) till board examination		**Revision & Test**		
Total Working Days - 224 Days (Tentative)				