SYLLABUS (2024-25)
CLASS XI SCIENCE
EXAM SYLLABUS

SUBJECT-- ENGLISH CORE(301)		
BOOKS: Main Textbook: HORNBILL (NCERT) ; Supplementary Reader: SNAPSHOTS (NCERT)		
Month (Days)	**Syllabus**	**Learning Outcomes**
April	**Hornbill** U1. The Portrait of a Lady A Photograph **Snapshots** CH1. The Summer of a Beautiful White Horse Note making , Integrated Grammar Practice A.W.S.- Notice writing, Poster	● Identifying the main ideas in the text and making inferences based on information. ● Reading and comprehending extended texts ● Describing distinct literary characteristics of poetic forms.
June	**Hornbill** U2. We're Not Afraid To Die...if We Can All Be Together A.W.S.-Advertisement(Introduction)	● Engaging in independent reflection and enquiry. ● Analyzing and extrapolating the ideas.
July	**Hornbill** U3. Discovering Tut: the Saga Continues The Laburnum Top **Snapshots** Ch.2. The Address W.S.-Poster, Advertisement (Classified), Letter to the Editor, Letter of Complaint, Letter of Enquiry, Letter for Placing order. Integrated Grammar Practice	● Ability to obtain, analyze and communicate information. ● Expressing ideas in an organized manner using appropriate language and format. ● Paraphrasing and summarizing the main ideas. ● Ability to obtain, analyze and communicate information.
August	**Hornbill** U4. Landscape of the Soul The Voice of the Rain **Snapshots** Ch.5 .Mother's day W.S.-Speech, Debate, Article, Report Integrated Grammar Practice	● Ability to write coherently and respond imaginatively. ● Participating in critical conversations and preparing, organizing and delivering ideas.

September	READING: Unseen passage WRITING: Letter Writing/ Poster Drafting	● promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities
	HORNBILL -Silk Road , Revision Examination Assessment of Speaking and Listening	● promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities
	Letter to the School/College Authorities, Advertisement(Display) Integrated Grammar Practice	● promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities
October	**Hornbill** U5. The Ailing Planet: the Green Movement's Role U6. The Browning Version Childhood **Snapshots** Ch.4. Albert Einstein at School W.S.-Letter to the School/College Authorities, Advertisement(Display) Integrated Grammar Practice	● The students will acquire necessary listening skills in order to follow and comprehend discourse such as lectures, conversations, interviews, and discussions. ● The students will develop adequate speaking skills to communicate effectively to follow academic
November	**Hornbill** U7 .The Adventure	● Reading, comparing, contrasting, thinking critically and relating ideas to life. ● Preparing CV and making notes from reference materials. ● Analyzing plays for their structure and meaning, using correct terminology
	W.S.- Advertisement (Display),Job Application. Integrated Grammar Practice	● Identify the central/main point and supporting details, etc., to build communicative competence in various lexicons of English ● Promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities
December	**Hornbill** U8. Silk Road Father to Son **Snapshots** Ch.6.The Ghat of the Only World	● Reading, comparing, contrasting, thinking critically and relating ideas to life. ● Developing greater confidence and proficiency in the use of language skills.
	Integrated Grammar Practice	● Reading, comparing, contrasting, thinking critically and relating ideas to life.

January	**Snapshots** Ch.7. Birth Ch.8. The Tale of Melon City Integrated Grammar Practice	● Ability to evaluate, integrate and apply appropriate information. ● Understanding, appreciating and analyzing the various elements of poetry.
February	**REVISION**	
March	**ANNUAL EXAMINATION**	

Syllabus (UT-I)	**Syllabus (HY)**	**Syllabus (UT-II)**	**Syllabus (AE)**
U1. The Portrait of a Lady, A Photograph U2. We're Not Afraid To Die...if We Can All Be Together Snapshots CH1. The Summer of a Beautiful White Horse , Note making , Integrated Grammar Practice. Notice writing, Poster .Advertisement(Introduction)	PA- I(portion) & HORNBILL: Discovering Tut, Landscape of the soul, The Voice of the Rain:, Childhood SNAPSHOTS: The Address, The mother's day READING: Unseen passage WRITING: Letter Writing/ Poster Drafting	Unseen Passage, Report, Adventure, Birth, Father to Son, Mother's Day, Silk Road, The ghat of the only world. READING: Unseen passage (Note Making) WRITING: Invitations	Whole syllabus as per C.B.S.E
ASL	**Examination Assessment of Speaking and Listening-** The students will acquire necessary listening skills in order to follow and comprehend discourse such as lectures, conversations, interviews, and discussions. The students will develop adequate speaking skills to communicate effectively to follow academic		

SUBJECT- PHYSICS (042)		
BOOKS: NCERT		
Month	**Syllabus**	**Learning Outcomes**
April	**Unit I**: Physical World and Measurement Chapter–1: Physical World Physics-scope and excitement; nature of physical laws; Physics, technology and society. Chapter–2: Units and Measurements Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Significant figures. Dimensions of physical quantities, dimensional analysis and its applications. **Unit II**: Kinematics Chapter–3: Motion in a Straight Line Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion, uniform and nonuniform motion, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).	Students will be able to 1. Understanding of physics in daily life 2. Correlate Physics, technology and Society. 3. Nature of physical laws. 4. Understand The international system of Units 5. Learn Accuracy, precision of instruments and errors in measurement.

June	Chapter–4: Motion in a Plane Scalar and vector quantities. position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration projectile motion, uniform circular motion.	1'Apply the equations of motion 2.Learn to use and analyses of the graphs 3. Grasp the concept of vectors in daily life. 4.Analyses the motion of two objects relative to each other 5.Understand the role of projectile motion in the world around us.
July	**Unit III**: Laws of Motion Chapter–5: Laws of Motion Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road). **Unit IV**: Chapter–6: Work, Energy and Power Work done by a constant force and a variable force; kinetic energy, work energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: non-conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.	1. The student should understand the significance of Newton's law of inertia by identifying and refuting classic misconceptions concerning the causes of motion. 2. The student should recognize inertia as a property of an object which depends solely upon mass. 3. The student should be able to relate the presence of balanced or unbalanced forces to the state of motion of an object. The student should be able to relate force diagrams and force information to information describing the motion of an object
August	**Unit V**: Motion of System of Particles and Rigid Body Chapter–7: System of Particles and Rotational Motion Centre of mass of a two-particle system, momentum conservation and Centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). **Unit VI**: Chapter–8: Gravitation Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite.	1. The student should be able to define Torque and identify its application. 2. The student should be able to predict whether a torque will rotate an object or not. 3. The student should be able to define angular Momentum and identify its units. 1. Calculate effects of gravitational force on planets. 2. Discuss the effects of weightlessness on the human body. 3. Describe and demonstrate how objects in a state of free fall are accelerated by gravity at an equal rate. 4. Define gravity as the force of attraction between two objects.

September	**Unit VII**: Properties of Bulk Matter Chapter–9: Mechanical Properties of Solids Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy. Chapter–10: Mechanical Properties of Fluids Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its simple applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.	The student will be able to understand 1.Practicality of Fluid dynamics in real life 2.Pascal's Law, Bernoulli's theorem, Magnus Effect) The student will be able to understand Concept of surface Tension and Surface energy and will be able to relate it with daily life. 3. Pascal's Law, Bernoulli's theorem, Magnus Effect) The student will be able to understand Concept of surface Tension and Surface energy and will be able to relate it with daily life
October	Chapter–11: Thermal Properties of Matter Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law.	The student will be able to understand the 1.Concept of Heat 2.work 3. Internal energy of the system.
November	**Unit VIII**: Thermodynamics Chapter–12: Thermodynamics Thermal equilibrium and definition of temperature zeroth law of thermodynamics, heat, work and internal energy. First law of thermodynamics, Second law of thermodynamics: gaseous state of matter, change of condition of gaseous state - isothermal, adiabatic, reversible, irreversible, and cyclic processes. **Unit IX**: Behavior of Perfect Gases and Kinetic Theory of Gases Chapter–13: Kinetic Theory Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.	The student will be able to understand the 1.Concept of Heat 2.work 3. Internal energy of the system. Learners will be able to understand the Principle of Heat Engine. 4. Reversible and irreversible process. 1. The concept of Pressure exerted by a gas on the walls of the container. Learners will be able to understand the 2. Concept and relation between different specific heat capacities. 3. Understand the concept of equipartition of energy.
December	**Unit X**: Oscillations and Waves Chapter–14: Oscillations Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. Simple harmonic motion (S.H.M) and its equations of motion; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period.	Students will be learn the 1. Concept of SHM in daily life and its applications. 2. Calculation of velocities of the object at various points during SHM. 3.basic concept of generation of waves along with its Classification

January	Chapter–15: Waves Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats.	Students will be able to understand the 1.basic concept of generation of waves along with its Classification

PRACTICALS:-

The record, to be submitted by the students, at the time of their annual examination, has to include:

- Record of at least 8 Experiments [with 4 from each section], to be performed by the students.
- Record of at least 6 Activities [with 3 each from section A and section B], to be performed by the students.
- Report of the project carried out by the students.

EVALUATION SCHEME:-

Time 3 hours	Max. Marks: 30 Marks
Two experiments one from each section	7+7 marks
Practical record (experiment and activities)	5 marks
One activity from any section	3 marks
Investigatory Project	3 marks
Viva on experiments, activities and project	5 marks
Total	30 marks

SECTION–A Experiment

1. To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.
2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.
3. To determine volume of an irregular lamina using screw gauge.
4. To determine radius of curvature of a given spherical surface by a spherometer.
5. To determine the mass of two different objects using a beam balance.
6. To find the weight of a given body using parallelogram law of vectors.
7. Using a simple pendulum, plot its L-T2 graph and use it to find the effective length of second's pendulum.
8. To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.
9. To study the relationship between force of limiting friction and normal reaction and to find the co- efficient of friction between a block and a horizontal surface.
10. To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination θ by plotting graph between force and Sinθ.

Activities :-

1. To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.
2. To determine mass of a given body using a metre scale by principle of moments.
3. To plot a graph for a given set of data, with proper choice of scales and error bars.
4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in range of a projectile with angle of projection.
6. To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).
7. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

	SECTION–B Experiments 1. To determine Young's modulus of elasticity of the material of a given wire. 2. To find the force constant of a helical spring by plotting a graph between load and extension. 3. To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and 1/V. 4. To determine the surface tension of water by capillary rise method. 5. To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body. 6. To study the relationship between the temperature of a hot body and time by plotting a cooling curve. 7. To determine specific heat capacity of a given solid by method of mixtures. 8. To study the relation between frequency and length of a given wire under constant tension using sonometer. 9. To study the relation between the length of a given wire and tension for constant frequency using sonometer. 10. To find the speed of sound in air at room temperature using a resonance tube by two resonance positions. **Activities:-** 1. To observe change of state and plot a cooling curve for molten wax. 2. To observe and explain the effect of heating on a bi-metallic strip. 3. To note the change in level of liquid in a container on heating and interpret the observations. 4. To study the effect of detergent on surface tension of water by observing capillary rise. 5. To study the factors affecting the rate of loss of heat of a liquid. 6. To study the effect of load on depression of a suitably clamped metre scale loaded at (i) its end (ii) in the middle. 7. To observe the decrease in pressure with increase in velocity of a fluid.
February **March**	**REVISION AND ANNUAL EXAM**

EXAM SYLLABUS

Syllabus (UT-I)	**Syllabus (HY)**	**Syllabus (UT-II)**	**Syllabus (AE)**
UNIT I & II	Chapter– 1, 2, 3, 4, 5, 6 , 7, 8	Chapter– 9, 10,11	Whole syllabus
AIL TOPIC	1.To study the conservation of energy of a ball rolling down on an inclined plane 2.To study the effect of detergent on surface tension of water by observing capillary rise.		

SUBJECT- CHEMISTRY(043)		
BOOKS: Chemistry Textbook for Class XI NCERT		
Month	**Syllabus**	**Learning Outcomes**
April	**Chapter 1 :Some Basic Concepts of Chemistry** General Introduction: Importance and scope of Chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.	Promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
June	**Chapter 3: Classification of Elements and Periodicity in Properties** . Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency.	Emerging new areas of chemistry and apprise them with their relevance in future studies and their application in various spheres of chemical sciences and technology.
July	**Chapter 2: Structure of Atom** Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and. **Chapter 4: Chemical Bonding and Molecular Structure** Valence electrons, ionic bond, covalent bond, bond parameters, Lewis's structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond.	Acquaint students with different aspects of chemistry used in daily life.

August	**Chapter 5: Chemical Thermodynamics** Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction) Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes, criteria for equilibrium.	Integrate life skills and values in the context of chemistry.
September	**Chapter 6**: **Equilibrium** Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect (with illustrative examples). **Chapter 7: Redox Reactions** Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.	Make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.
October	**Chapter 8: Organic Chemistry** Some Basic Principles and Techniques 20 Periods General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.	Expose the students to different processes used in industries and their technological applications.

November	**Chapter 9: Hydrocarbons** Classification of Hydrocarbons Aliphatic Hydrocarbons**:** Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, the structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, the structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution.	1. Synthesis of various compounds 2. Problem solving skills in identification of compounds through word problems 3. critical thinking through problems involving multiple concept
December	**Revision AE 2024-25**	
January	**Revision AE 2024-25**	
Feb	**Revision AE 2024-25**	
March	**Annual examination 2024-25**	

EXAM SYLLABUS

Unit Test – I	**Half Yearly**	**Unit Test – II**	**Annual Examination**
Chapter – 1 & 2	Chapter –1,2,3,4	Chapter-6,7	Full Syllabus and practicals
AIL TOPIC	1.Art Integrated project on Hydrocarbons alkanes,alkynes,alkenes and functional groups. 2.Prepare different structure of molecules using ball and stick and identify their shapes and bond angle as per VSEPR theory.		

PRACTICALS:-

Quantitative Estimation:

1. Using a mechanical balance/electronic balance.

2. Preparation of standard solution of Oxalic acid.

3. Determination of strength of a given solution of Sodium hydroxide by titrating it against standard solution of Oxalic acid.

4. Preparation of standard solution of Sodium carbonate.

5. Determination of strength of a given solution of hydrochloric acid by titrating it against standard Sodium Carbonate solution.

Qualitative Analysis 1.

Determination of one anion and one cation in a given salt Cation: Pb^{2+}, Cu^{2+} As^{3+}, $A\ell^{3+}$, Fe^{3+}, Mn^{2+}, Zn^{2+}, Ni^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, NH_4^+

Anions: $(CO_3)^{2-}$, S^{2-}, $(SO_3)^{2-}$, $(NO_2)^-$, $(SO_4)^{2-}$, $C\ell^-$, Br^-, I^-, $(PO_4)^{3-}$, $(C_2O_4)^{2-}$, CH_3COO^-, NO_3^- (Note: Insoluble salts excluded)

2. Detection of -Nitrogen, Sulphur, Chlorine in organic compounds.

PROJECTS

Scientific investigations involving laboratory testing and collecting information from other sources. A few suggested Projects

• Checking the bacterial contamination in drinking water by testing sulphide ion

• Study of the methods of purification of water

• Testing the hardness, presence of Iron, Fluoride, Chloride, etc., depending upon the regional variation in drinking water and study of causes of presence of these ions above permissible limit (if any).

• Investigation of the foaming capacity of different washing soaps and the effect of addition of Sodium carbonate on it

• Study the acidity of different samples of tea leaves. • Determination of the rate of evaporation of different liquids.

• Study the effect of acids and bases on the tensile strength of fibers.

• Study of acidity of fruit and vegetable juices.

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen

Practicals Marking Scheme-

Evaluation Scheme	Marks
Volumetric Analysis	08
Salt Analysis	08
Content Based Experiment	06
Project Work	04
Class record and viva	04
TOTAL	**30**

SUBJECT - MATHEMATICS			
BOOK: Mathematics textbook for class XI; by N.C.E.R.T **REFERENCE BOOK:** Mathematics Exemplar problems For Class XI; by N.C.E.R.T.			
Month	**Syllabus**	**Learning Outcomes**	**Practical**
April	Ch 1 Sets	Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection ofsets. Difference of sets. Complement of a set. Properties of Complement.	To find the number of subsets of a given set and verify that if a set has *n* number of elements, then the total number of subsets is 2^n. To represent set theoretic operations using Venn diagrams.
	Ch 2 Relations & Functions	Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation.	To verify that for two sets A and B, n (A×B) = pq and the total number of relations from A to B is 2^{pq}, where n(A) = p and n(B) = q.
June	Ch 3 Trigonometric Functions	Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measureto another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2x + \cos^2x = 1$, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and theirgraphs Expressing sin (x±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications. Deducing identities like: tan(x ± y), cot(x ± y), sinα ± sinβ, cosα + cosβ and $cos\alpha - cos\beta$. Identities related to sin2x, cos2x, tan2 x, sin3x, cos3x and tan3x.	To find the values of sine and cosine functions in second, third and fourth quadrants using their given values in first quadrant. To prepare a model to illustrate the values of sine function and cosine function for different angles which are multiples of $\frac{\pi}{2}$ and π.
July	Ch 12 Limits and Derivatives	Derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.	Project
	Ch 13 Statistics	Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data.	Project
August	Ch 4 Complex Numbers and Quadratic	Need for complex numbers, especially$\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations.	To interpret geometrically the meaning of $i = \sqrt{-1}$ and its integral powers.

	Equations	Algebraic properties of complex numbers. Argand plane.	
	Ch 5 Linear Inequalities	Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation onthe number line.	To verify that the graph of a given inequality, say $5x + 4y – 40 < 0$, of the form $ax + by + c < 0$, a, $b > 0$, $c < 0$ represents only one of the two half planes.
September	Ch 6 Permutations and Combinations	Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formulaefor ${}^{n}P_{r}$ and ${}^{n}C_{r}$ and their connections, simple applications.	To find the number of ways in which three cards can be selected from given five cards.
	REVISION & HY EXAMINATION		
October	Ch 7 Binomial Theorem	Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications.	To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.
	Ch 8 Sequence and Series	Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum ofn terms of a G.P. Infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.	To obtain formula for the sum of squares of first *n*-natural numbers.
	Ch 9 Straight Lines	Brief recall of two-dimensional geometry from earlier classes, Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point slope form, slope-intercept form, two-point form, intercept form, Distance of a point from a line.	To verify that the equation of a line passing through the point of intersection of two lines $a1x + b1y + c1=0$ and $a2x + b2y + c2 = 0$ is of the form $(a1x + b1y + c1) + l (a2x + b2y + c2) = 0$.
November	Ch 10 Conic Sections	Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipseand hyperbola. Standard equation of a circle	Project
	Ch 11 Introduction to Three-dimensional Geometry	Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.	Project
December	Ch 14 Probability	Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' event	Project

February	**Revision & Annual Examination 2024 – 25**			
March	**Annual Examination 2024 – 25**			
Syllabus	**UT – I**	**HY**	**UT – II**	**AE**
	Ch 1 to 3	Ch 1 to 6	Ch 7 to 9	Ch 1 to 14

SUBJECT – BIOLOGY (044) **Name of the book – BIOLOGY** **Publication – NCERT**		
Month	**Syllabus**	**Learning Outcome**
April	Chapter-1: The Living World Biodiversity Chapter-2: Biological Classification Chapter -16 Human Digestive system Chapter-5: Morphology of Flowering Plants	Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature. five kingdom classification Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids. Structure and function of alimentary canal ,process of digestion and digestive enzyme.Digestive disorders Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae.
June	Chapter-8: Cell-The Unit of Life	Cell theory and cell as the basic unit of life, structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell organelles - structure and functions.
July	UT I Chapter-6: Anatomy of Flowering Plants . Chapter 11 - Transport in Plants	Anatomy and functions of tissue systems in dicots and monocots. Process of transportation :active and passive transport ,facilitated diffusion ,plasmolysis and imbibition,Apoplastic and symplastic movement .
August	Chapter-3: Plant Kingdom Chapter 12 Nutrition in plants	Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophytes, Pteridophyta, Gymnosperm and angiosperms Concept of hydroponics , classification of micro and macronutrients ,importance of different nutrients for plants growth and development . Respiratory system in humans; mechanism of breathing and its regulation in

	Chapter-17: Breathing and Exchange of Gases	humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration
September	Half Yearly Examination Chapter-7: Structural Organisation in Animals Chapter-9: Biomolecules	Morphology, Anatomy and functions of different systems of frog, earthworms and cockroach. Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids
October	Chapter-10: Cell Cycle and Cell Division Chapter-13: Photosynthesis in Higher Plants Chapter-18: Body Fluids and Circulation	Cell cycle, mitosis, meiosis and their significance. Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis. Composition of blood, blood groups, coagulation of blood. Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system.
November	Chapter-14: Respiration in Plants Chapter-19: Excretory Products and Their Elimination	Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport. Modes of excretion, human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function and disorders.
December	Chapter-4: Animal Kingdom Chapter-15: Plant - Growth and Development	Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level. Seed germination; phases of plant growth, conditions of growth and growth regulators
January	Chapter-20 Locomotion and Movement Chapter-21 Neural Control and Coordination	Types of movement - ciliary, flagellar, muscular; skeletal muscle, contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal systems . Neuron and nerves; Nervous system in humans - generation and conduction of nerve impulse.
February	Chapter-22 Chemical Coordination and Integration	Endocrine glands and hormones; human endocrine system, mechanism of hormone action ,role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders.
March	Annual Examination	

Syllabus of UT- I	**Syllabus (Half Yearly)**	**Syllabus of UT- II**	**Syllabus Annual**
Chapter 1, 2,5 &16	Chapter 1,2,3,5,6,8,11,12,16 & 17	Chapter 7,9,13 &18	Whole syllabus

Practical

A: Experiments

1. Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can besubstituted in case Of particular geographical location) including dissection and display Of floral whorls, anther and ovary to show number Of chambers (floral formulae and floral diagrams), type of root (tap and adventitious); type Of stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).

2. Preparation and study Of T.S. Of dicot and monocot roots and stems (primary).
3. Study Of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves Of onion bulb).
5. Study Of distribution Of stomata on the upper and lower surfaces Of leaves,
6. Comparative study Of the rates of transpiration in the upper and lower surfaces Of leaves.
7. Test for the presence Of sugar, starch, proteins and fats in suitable plant and animal materials.
8. Study Of the rate Of respiration in flower buds/leaf tissue and germinating seeds.
9. Test for presence Of urea,sugar,albumin,bile salts in urine.

B. Observation (Spotting)

1. Parts Of a compound microscope.
2. Specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss. fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
3. Virtual specimens/slides/models and identifying features of - Amoeba, Hydra,liverfluke, Ascaris, leech, earthworm, prawn, silkworm. honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
5. Different types Of inflorescence (cymose and racemose).
6. Human skeleton and different types Of joints with the help of virtual images/models only.

SUBJECT-PHYSICAL EDUCATION (048)		
Month	**Syllabus**	**Learning Outcome**
April	**Unit I & II** **Changing Trends and Careers in Physical Education** 1. Concept, Aims & Objectives of Physical Education 2. Development of Physical Education in India – Post Independence 3. Changing Trends in Sports- playing surface, wearable gear and sports equipment, technological advancements 4. Career options in Physical Education 5. Khelo-India Program and Fit – India Program **Olympism Value Education** 1. Olympism – Concept and Olympics Values (Excellence, Friendship & Respect),Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind, Ancient and Modern Olympics	The students will be able to: ● Recognize the concept, aim, and objectives of Physical Education. • Identify the Post independence development in Physical Education. • Categorize Changing Trends in Sports- playing surface, wearable gear, sports equipment, technological • Explore different career options in the field of Physical Education. • Make out the development of Khelo India and Fit India Program. • Incorporate values of Olympism in your life. • Differentiate between Modern and Ancient Olympic Games, Paralympics, and Special Olympic games • Identity the Olympic Symbol and Ideals
June	**Unit III- Yoga** 1. Meaning and importance of Yoga 2. Introduction to Astanga Yoga 3. Yogic Kriyas (Shat Karma) 4. Pranayama and its types. 5. Active Lifestyle and stress management through Yoga	The students will be able to ● Recognize the concept of yoga and be aware of the importance; of it • Identify the elements of yoga • Identify the Asana, Pranayama, meditation, and yogic Kriyas • Classify various yogic activities for the enhancement of concentration, Know about relaxation techniques for improving
July	**Unit IV- Physical Education & Sports for CWSN (Children With Special Needs- Divyang)** 1.Concept of Disability and Disorder, Types of Disability, its causes & nature (Intellectual disability, Physical disability),Disability Etiquette 3.Aim & Objective of Adaptive Physical Education. Role of various professionals for children with special needs (Counselor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & special Educator)	The students will be able to: ● Define the concept of disability and disorders. ● Describe the Intellectual & Physical disability, its causes & nature. ● Explain the aim of Adaptive Physical Education and the role of various professionals for CWSN. ● Identify possibilities and scope in adaptive physical education • Relate various types of professional support for children with special needs along with their roles and responsibilities
August	**Unit V** **Physical Fitness, Wellness, and Lifestyle** 1. Meaning & importance of Wellness, Health, and Physical Fitness. 2. Components/Dimension of Wellness, Health, and Physical Fitness 3. Traditional Sports & Regional Games for promoting wellness 4. Leadership through Physical Activity and Sports	The students will be able to: ● Explain wellness and its importance and define the components of wellness. • Classify physical fitness and recognize its importance in life. • Distinguish between skill related and health-related components of physical fitness.

	5. Introduction to First Aid – PRICE	• Illustrate traditional sports and regional games to promote wellness. Relate leadership through physical activity and sports • Illustrate the different steps used in first aid - PRICE.
September	**Unit VI Test, Measurement & Evaluation** 1. Define Test, Measurements and Evaluation. 2. Importance of Test, Measurements and Evaluation in Sports. 3. Calculation of BMI, Waist – Hip Ratio, Skin fold measurement (3-site) 4. Somato Types (Endomorph, Mesomorphy & Ectomorphy) 5. Measurements of health-related fitness	The students will be able to: • Define the terms test, measurement, and evaluation, • Differentiate norm and criterion referenced standards, • Differentiate formative and summative evaluation, • Discuss the importance of measurement and evaluation processes, • Understand BMI: A popular clinical standard and its computation • Differentiate between Endomorphy, Mesomorphy & Ectomorphy h describe the procedure of Anthropometric
October	**Unit VII** **Fundamentals of Anatomy, Physiology in Sports** 1. Definition and importance of Anatomy and Physiology in Exercise and Sports. 2. Functions of Skeletal System, Classification of Bones, and Types of Joints. 3. Properties and Functions of Muscles. 4. Structure and Functions of Circulatory System and Heart. 5. Structure and Functions of Respiratory System.	The students will be able to: • Identify the importance of anatomy and physiology and recognize the functions of the skeleton. • Understand the functions of bones and identify various types of joints and figure out the properties and functions of muscles and understand how they work. • Understand the anatomy of the respiratory system and describe it's working. Identify and analyses the layout and functions of Circulatory System
November	**Unit VIII** **Fundamentals of Kinesiology and Biomechanics in Sports** 1. Definition and Importance of Kinesiology and Biomechanics in Sports. Principles of Biomechanics 2. Kinetics and Kinematics in Sports 3. Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation 4. 5. Axis and Planes – Concept and its application in body movements	The students will be able to: • Understand Kinesiology and Biomechanics with their application in sports. Explain biomechanical principles and their utilization in sports and physical education. • Illustrate fundamental body movements and their basic patterns. • Learn about the Axis and Planes and their application with body movements.
December	**Unit IX Psychology & Sports** 1. Definition & Importance of Psychology in Physical Education & Sports; Developmental Characteristics at Different Stages of Development; 2. Adolescent Problems & their Management; Team Cohesion and Sports; Introduction to Psychological Attributes: Attention,	The students will be able to: • Identify the role of Psychology in Physical Education and Sports • Differentiate characteristics of growth and development at different stages. • Explain the issues related to adolescent behavior and Team Cohesion in Sports Correlate the psychological concepts with the

	Resilience, Mental Toughness	sports and athlete specific situations
January	**Unit X Training and Doping in Sports** 1.Concept and Principles of Sports Training 2. Training Load: Over Load, Adaptation, and Recovery 3. Warming-up & Limbering Down – Types, Method & Importance 4. Concept of Skill, Technique, Tactics & Strategies Concept of Doping and its disadvantages 5.Concept of Doping and its disadvantages	The students will be able to: ● Understand the concept and principles of sports training. • Summaries training load and its concept. • Understand the concept of warming up & limbering down in sports training and their types, method & importance. • Acquire the ability to differentiate between the skill, technique, tactics & strategies in sports training. Interpret concept of doping.
February	**Practical's practice and practical exams**	
March	**ANNUAL EXAMINATION**	

Syllabus (UT-I)	**Syllabus (HY)**	**Syllabus (UT-II)**	**Syllabus (AE)**
Unit I TO Unit III Practical's - yogic practices	Unit IV TO Unit VI Practical's - Physical Fitness Test: SAI Khelo India Test	Unit VII TO Unit IX III Practical's - Proficiency in Games and Sports	Unit I TO Unit X Practical's - Viva Voce (Health/ Games & Sports/ Yoga
PROJECT WORK	Record File		