BISHOP SCOTT BOYS' SCHOOL

GRADE XI / CHEMISTRY/ SYLLABUS (2024-25)

MONTH	CHAPTER
APRIL	**LESSON 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
MAY	**LESSON 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
JUNE	**LESSON 2 : STRUCTURE OF ATOM** 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 Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals
JULY	**LESSON 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. Nomenclature of elements with atomic number greater than 100
AUGUST	**LESSON 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
SEPTEMBER	**LESSON 8 : 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

	REVISION
OCTOBER	**LESSON 6 : 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. Third law of thermodynamics (brief introduction)
NOVEMBER	**LESSON 7 : 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)
DECEMBER	**LESSON 12 : ORGANIC CHEMISTRY -SOME BASIC PRINCIPLES AND TECHNIQUES** 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
JANUARY	**LESSON 13 : 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. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of the functional group in monosubstituted benzene. Carcinogenicity and toxicity
FEBRUARY-MARCH	**REVISION**

BISHOP SCOTT BOYS' SCHOOL

GRADE XI / ENGLISH/ SYLLABUS (2024-25)

MONTH	HORNBILL	SNAPSHOTS	GRAMMAR/WRITING/READING COMPREHENSION
APRIL	LESSON 1 : THE PORTRAIT OF A LADY	LESSON 1: THE SUMMER OF THE BEAUTIFUL WHITE HORSE	➢ TENSES ➢ READING COMPREHENSION
MAY	POEM 1 : A PHOTOGRAPH	LESSON 2 : THE ADDRESS	➢ NOTE MAKING BASED ON A PASSAGE ➢ READING COMPREHENSION
JUNE	LESSON 2 : WE'RE NOT AFRAID TO DIE…	LESSON 3 : MOTHER'S DAY	➢ POSTER MAKING ➢ REORDERING OF SENTENCES ➢ READING COMPREHENSION
JULY	POEM 2 : THE LABURNUM TOP LESSON 3 : DISCOVERING TUT	LESSON 3 : MOTHER'S DAY (Contd.)	➢ CLAUSES ➢ PASSAGE SUMMARIZATION ➢ READING COMPREHENSION
AUGUST	POEM 3 : THE VOICE OF THE RAIN	LESSON 4 : BIRTH	➢ CLASSIFIED ADS ➢ SPEECH WRITING ➢ TRANSFORMATION OF SENTENCES ➢ READING COMPREHENSION
SEPTEMBER	REVISION		
OCTOBER	LESSON 4 : THE ADVENTURE POEM 4 : CHILDHOOD	LESSON 5 : THE TALE OF MELON CITY LESSON 1: THE SUMMER OF THE BEAUTIFUL WHITE HORSE (REVISION)	➢ DEBATE WRITING ➢ TENSES (REVISION) ➢ REORDERING OF SENTENCES (REVISION)
NOVEMBER	LESSON 5 : SILK ROAD	LESSON 2 : THE ADDRESS (REVISION) LESSON 3 : MOTHER'S DAY (REVISION) LESSON 4 : BIRTH (REVISION)	➢ CLAUSES (REVISION) ➢ TRANSFORMATION OF SENTENCES (REVISION)
DECEMBER	POEM 5 : FATHER TO SON	LESSON 5 : THE TALE OF MELON CITY (REVISION)	➢ NOTE MAKING BASED ON PASSAGE (REVISION) ➢ PASSAGE SUMMARIZATION (REVISION)
JANUARY	ASL PRACTICE		
FEBRUARY-MARCH	REVISION		

BISHOP SCOTT BOYS' SCHOOL

GRADE XI/INFORMATICS PRACTICES/ SYLLABUS (2024-25)

MONTH	CHAPTERS
APRIL	**LESSON 1 : COMPUTER SYSTEM** • Introduction to computer and computing: evolution of computing devices • Components of a computer system and their interconnections • Input/output devices • Computer Memory: Units of memory, types of memory – primary and secondary • Data deletion, its recovery and related security concerns • Software: purpose and types – system and application software, generic and specific purpose software
MAY	**LESSON 2 : GETTING STARTED WITH PYTHON** • Basics of Python programming • Execution modes: - interactive and script mode, the structure of a program, indentation • Identifiers, keywords, constants, variables
JUNE	**LESSON 3 : PYTHON PROGRAMMING FUNDAMENTALS** • Types of operators, precedence of operators • Data types, mutable and immutable data types • Statements, expressions, evaluation and comments, input and output statements • Data type conversion • Debugging
JULY	**LESSON 4 : CONDITIONAL AND LOOPING CONSTRUCTS** • Control Statements: if-else, if-elif-else, while loop, for loop **LESSON 5 : LISTS IN PYTHON** • Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions – len(),list(),append(),insert(), count(),index(),remove(), pop(), reverse(), sort(), min(),max(),sum()
AUGUST	**LESSON 6 : DICTIONARY** • Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions – dict(), len(), keys(), values(), items(), update(), del, clear()
SEPTEMBER	Revision
OCTOBER	**LESSON 7 : DATABASE CONCEPTS** • Database Concepts: Introduction to database concepts and its need, Database Management System • Relational data model: Concept of domain, tuple, relation, candidate key, primary key, alternate key

NOVEMBER	**LESSON 8 : STRUCTURED QUERY LANGUAGE (SQL)** • Advantages of using Structured Query Language • Data Definition Language, Data Query Language and Data Manipulation Language • Introduction to MySQL • Creating a database using MySQL, Data Types • Data Definition: CREATE DATABASE, CREATE TABLE, DROP, ALTER • Data Query: SELECT, FROM, WHERE with relational operators, BETWEEN, • Logical operators, IS NULL, IS NOT NULL • Data Manipulation: INSERT, DELETE, UPDATE
DECEMBER	**LESSON 9 : INTRODUCTION TO THE EMERGING TRENDS** • Artificial Intelligence, Machine Learning, Natural Language Processing, Immersive experience (AR, VR), Robotics • Big data and its characteristics • Internet of Things (IoT), Sensors, Smart cities • Cloud Computing and Cloud Services (SaaS, IaaS, PaaS) • Grid Computing • Block chain technology
JANUARY	Revision
FEBRUARY - MARCH	Revision

BISHOP SCOTT BOYS' SCHOOL

GRADE XI / MATHEMATICS / SYLLABUS (2024-25)

MONTHS	CHAPTERS	ACTIVITY
APRIL	LESSON 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 of sets. Difference of sets. Complement of a set. Properties of Complement	ACTIVITY 1, 3 & 4
MAY	LESSON 2 : RELATIONS AND 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. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions	ACTIVITY 2, 5 & 6
JUNE	LESSON 3 : TRIGONOMETRIC FUNCTIONS Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to 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 their graphs. Expressing *sin (x±y)* and *cos (x±y)* in terms of sin*x*, sin*y*, cos*x* & cos*y* and their simple applications. Deducing identities like the following: $$\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \ \tan B}$$ $$\cot(A \pm B) = \frac{\cot A \cot B \ \mp 1}{\cot B \pm cot\ A}$$ $$\sin C \pm \sin D = 2 \sin \frac{C \pm D}{2} \cos \frac{C \mp D}{2}$$ $$\cos C + \cos D = 2 \cos \frac{C + D}{2} \cos \frac{C - D}{2}$$ $$\cos C - \cos D = -2 \sin \frac{C + D}{2} \sin \frac{C - D}{2}$$ Identities related $to\ sin2x, cos2x, tan2\ x, sin3x, cos3x\ and\ tan3x$	ACTIVITY 7, 8, 9 & 10
JULY	LESSON 5 : COMPLEX NUMBERS AND QUADRATIC EQUATIONS Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane LESSON 6 : LINEAR INEQUALITIES Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line	ACTIVITY 11, 12 & 13

AUGUST	LESSON 7 : PERMUTATIONS AND COMBINATIONS Fundamental principle of counting. Factorial *n.* (n!) Permutations and combinations, derivation of Formulae for ${}^{n}P_{r}$ and ${}^{n}C_{r}$ and their connections, simple applications LESSON 8 : BINOMIAL THEOREM Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications	ACTIVITY 14 & 15
SEPTEMBER	LESSON 9 : SEQUENCE AND SERIES Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of *n* terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M LESSON 10 : 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 REVISION	ACTIVITY 16, 17, 18, 19 & 20
OCTOBER	LESSON 11 : 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, ellipse and hyperbola. Standard equation of a circle LESSON 12 : INTRODUCTION TO THREE-DIMENSIONAL GEOMETRY Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points	ACTIVITY 21, 22, 23, 24 & 25
NOVEMBER	LESSON 13 : LIMITS AND DERIVATIVES Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions	ACTIVITY 26 & 27
DECEMBER	LESSON 15 : STATISTICS Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data	ACTIVITY 28 & 29
JANUARY	LESSON 16 : 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' events	ACTIVITY 32 & 33
FEBRUARY - MARCH	REVISION	

BISHOP SCOTT BOYS' SCHOOL

GRADE XI / PHYSICAL EDUCATION / SYLLABUS (2024-25)

MONTH	CHAPTER
APRIL	Unit I : Changing Trends & Career 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
MAY	Unit II : Olympic Value Education 1. Olympism – Concept and Olympics Values (Excellence, Friendship & Respect) 2. Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind 3. Ancient and Modern Olympics 4. Olympics - Symbols, Motto, Flag, Oath, and Anthem 5. Olympic Movement Structure - IOC, NOC, IFS, Other members 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
JUNE	Unit IV : Physical Education & Sports for CWSN (Children with Special Needs - Divyang) 1. Concept of Disability and Disorder 2. Types of Disability, its causes & nature (Intellectual disability, Physical disability) 3. Disability Etiquette 4. Aim and objectives of Adaptive Physical Education 5. Role of various professionals for children with special needs (Counselor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist, and Special Educator)

JULY	Unit V : Physical Fitness, Wellness, and Lifestyle 1. Meaning & importance of Wellness, Health, and Physical Fitness 2. Components/Dimensions of Wellness, Health, and Physical Fitness 3. Traditional Sports & Regional Games for promoting wellness 4. Leadership through Physical Activity and Sports 5. Introduction to First Aid – PRICE UNIT VI : Test, Measurements & 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)
AUGUST	UNIT VI : Test, Measurements & Evaluation 4. Somato Types (Endomorphy, Mesomorphy & Ectomorphy) 5. Measurements of health-related fitness Unit VII : Fundamentals of Anatomy and 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
SEPTEMBER	REVISION
OCTOBER	Unit VIII : Fundamentals of Kinesiology and Biomechanics in Sports 1. Definition and Importance of Kinesiology and Biomechanics in Sports 2. Principles of Biomechanics 3. Kinetics and Kinematics in Sports 4. Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation 5. Axis and Planes – Concept and its application in body movements
NOVEMBER	Unit IX : Psychology & Sports 1. Definition & Importance of Psychology in Physical Education & Sports 2. Developmental Characteristics at Different Stages of Development 3. Adolescent Problems & their Management 4. Team Cohesion and Sports 5. Introduction to Psychological Attributes: Attention, Resilience, Mental Toughness
DECEMBER	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 5. Concept of Doping and its disadvantages
JANUARY	REVISION
FEBRUARY - MARCH	REVISION

BISHOP SCOTT BOYS' SCHOOL

GRADE XI / PHYSICS/ SYLLABUS (2024-25)

MONTH	CHAPTER
APRIL	**LESSON 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
MAY	**LESSON 3 : MOTION IN A STRAIGHT LINE** Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion
JUNE	**LESSON 3 : MOTION IN A STRAIGHT LINE** Uniform and non- uniform motion, and instantaneous velocity, uniformly accelerated motion, velocity -time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment)
JULY	**LESSON 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 **LESSON 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)
AUGUST	**LESSON 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 **LESSON 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
SEPTEMBER	**LESSON 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)

	LESSON 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 **REVISION**
OCTOBER	**LESSON 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
NOVEMBER	**LESSON 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 **LESSON 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
DECEMBER	**LESDON 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 **LESSON 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
JANUARY	**LESSON 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
FEBRUARY-MARCH	REVISION