# CURRICULUM
# GRADE-XI



# ENGLISH

***Rationale***

*Students are expected to have acquired a reasonable degree of language proficiency in English by the time they come to class XI and the course will aim essentially, at promoting the higher-order language skills.*
*For a large number of students this stage of learning will be a preparation for the university, and thereafter preparation for entry into the world of work, where a fairly high degree of proficiency in English may be required. The Core Course caters to both groups by promoting the language skills required for academic study as well as the language skills required for the workplace.*

***Objectives:***
*The general objectives at this stage are:*

- *to develop greater confidence and proficiency in the use of language skills necessary for social and academic purpose.*
- *to participate in group discussions, interviews by making short oral presentation on given topics.*
- *to identify the central/main point and supporting details, etc., to build communicative competence.*
- *to promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities.*
- *to develop ability and knowledge required in order to engage in independent reflection and enquiry.*

***At the end of this stage learners will be able to do the following:***

- *read and comprehend extended texts (prescribed and non-prescribed)*
- *text-based writing (i.e., writing in response to questions or tasks based on prescribed or unseen texts)*
- *understand and respond to lectures, speeches, etc.*
- *write expository / argumentative essays, explaining or developing a topic, arguing a case, etc.*
- *write items related to the workplace -minutes, memoranda, notices, summaries, reports etc.*
- *filling up of forms, making notes from reference materials, recorded talks etc.*

***Listening and Speaking Skills:***

- *Listening & speaking needs a very strong emphasis and is an important objective leading to professional competence.*
- *Hence, testing of oral skills is made an important component of the overall testing pattern.*

***The academic year is divided into two terms.***

| | | |
|---|---|---|
| *Unit Test - 1* | *:* | *July 27, 2026 to August 01, 2026* |
| *First Term Examination* | *:* | *September 16, 2026 to September 30, 2026* |
| *Pre-Annual Examination* | *:* | *December 07, 2026 to December 19, 2026* |
| *Final Term Examination* | *:* | *February 15, 2027 to February 27, 2027* |

| Month | Topics | Objective/Theme |
|---|---|---|
| April | **Familiarizing the students with the pattern of assessment** | |
| | **The Portrait of a Lady** | *Autobiographical account portraying deep familial love,* |
| | **A Photograph** | *Reflections on the passage of time, loss, and the enduring pain of separation through memories captured in a photograph.* |
| | **Posters** | *To design effective posters using concise language, visual appeal, and persuasive elements.* |
| | **Tenses** | *To use different tenses accurately to express time and actions clearly in speech and writing.* |
| June | **The Summer of The Beautiful White Horse** | *The story highlights honesty, innocence, and the strong value of family pride.* |
| | **The Laburnum Top** | *The vibrancy of life in nature and the dynamic relationship between stillness and sudden activity.* |
| | **Sentence Transformation** | *To transform sentences accurately while retaining the original meaning and grammatical correctness.* |
| July | **Speech Writing** | *To compose well-structured speeches using appropriate tone, persuasive techniques, and effective language.* |
| | **Debate writing** | *To write structured debate arguments presenting viewpoints logically with clarity and persuasive reasoning.* |
| | **The Address** | *The story explores loss, displacement, and the painful memories left behind by war.* |
| | **Project and ALS** | *Internal Assessment* |
| | **Re-ordering sentences** | *To arrange jumbled words logically to form coherent and meaningful sentence.* |
| August | **Classified Advertisements** | *To draft clear, concise classified advertisements using appropriate format and brief, impactful language.* |
| | **Note Making** | *To prepare organized, concise notes using appropriate format, headings, and abbreviations.* |
| | **The Voice of the Rain** | *The eternal cycle of nature and the harmonious relationship between the earth and the rain.* |
| | **Clauses** | *To identify and use different types of clauses accurately to construct complex and meaningful sentences.* |
| | **Discovering Tut: The Saga Continues** | *The lesson explores the intersection of history, science, and the enduring mystery of the past.* |
| September | **Childhood** | *The loss of innocence and the realization that marks the transition from childhood to adulthood.* |
| | **The Adventure** | *The story explores alternate history and the concept of parallel realities.* |

| *Month* | *Topics* | *Objective/Theme* |
|---|---|---|
| *October* | *Father to Son* | *The emotional distance and communication gap between a father and his son.* |
| | *The Tale of Melon City* | *Satirizes foolish governance and blind adherence to absurd laws in a kingdom.* |
| | *Birth* | *The story emphasizes dedication, courage, and a doctor's moral responsibility toward humanity* |
| | *We're Not Afraid to Die…. if We Can All Be Together* | *First person narrative highlighting courage, resilience, and unity in the face of danger.* |
| *November* | *Silk Road* | *Traveloque - Chronicles cultural encounters and spiritual quest amidst harsh landscapes.* |
| | *Mother's Day* | *The play humorously highlights domestic inequality and the need for shared responsibility in family life.* |
| *December* | *Revision* | |
| *January* | *Revision* | |

# हिंदी

## प्रस्तावना

**पाठ्यक्रम में हिंदी विषय की उपयोगिता**

भाषा मनुष्य के बीच संवाद का माध्यम ही नहीं है अपितु भाषा में मनुष्य के संस्कार, उसकी अस्मिता और पीढ़ियों से संचित गौरव अंतर्निहित है।

एक ओर जहाँ भाषा मनुष्य को सभ्यता, संस्कृति, साहित्य और ज्ञान–विज्ञान की विरासत को अक्षुण्ण रखती है वहीं आधुनिक संदर्भो में विकास के प्रतीकों को राष्ट्र के गौरव के रूप में सहजने का कार्य भी करती है। अतः संवैधानिक रूप से भारत की प्रथम राजभाषा तथा सर्वाधिक बोली और समझे जानी वाली भाषा हिंदी का पाठ्यक्रम में चयन विभिन्न उद्देश्यों को ध्यान में रखते हुए किया गया है जिसमें विद्यार्थियों का भाषिक दायरा एवं वैचारिक समृद्धि का विकास, सृजनात्मकता और संवेदनशीलता का परिष्कार, सौंदर्य बोध की समृद्धि, जीवन के विविध संदर्भो से जोड़ने वाले मानवीय गुणों का विकास आदि प्रमुख हैं।

**हिंदी भाषा शिक्षण के विशिष्ट उद्देश्य–**

1. विद्यार्थियों को हिंदी साहित्य की समृद्धि और शक्ति से परिचित कराना।
2. विद्यार्थियों में कल्पनाशीलता, विस्मय, कौतुहल, जिज्ञासा एवं सृजनात्मकता का विकास करना
3. भाषा एवं साहित्य के माध्यम से सांस्कृतिक धरोहर से विद्यार्थियों को जोड़ने का प्रयास करना
4. गद्य विधाओ के माध्यम से वैयक्तिक गुणों और क्षमताओं का विकास करना
5. परंपरागत पद्धतियों से आगे बढ़कर आधुनिक जीवन के परिवेश, समकालीन यथार्थ तथा मानवीय मूल्यों के प्रति अडिग आस्था विकसित करना।

## पाठ्यचर्या कक्षा–XI

## शिक्षार्थियों में श्रवण, कथन, पठन एवं लेखन कौशल में दक्षता हेतु आयाम

| माह | अवधारणा | कौशल<br>श्रवण – कथन – पठन – लेखन – कौशल |
|---|---|---|
| अप्रैल | जन संचार माध्यम | • समसामायिक विषयवस्तु पर अभ्यास। |
| | फीचर के लेखन | • पदों का सार, व्याख्या, |
| | हम तो एक–एक करि जाना (संत कबीर)<br>(पाठ्य पुस्तक आरोह भाग–1) | • काव्यांशों पर आधारित प्रश्नोंत्तर,<br>• भाव एवं शिल्प सौंदर्य। |
| | नमक का दरोगा (प्रेमचंद)<br>(पाठ्य पुस्तक आरोह भाग–1) | • सार, व्याख्या, प्रश्नोंत्तर। |
| | भारतीय गायिकाओं के बेजोड़: लता मंगेशकर (कुमार गंधर्व) (पूरक पुस्तक– वितान) | • पाठ का सार<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| जून | मियाँ नसरूद्दीन (कृष्णा सोबती)<br>( पाठ्य पुस्तक आरोह भाग–1) | • पाठ का सार<br>• पाठ्यपुस्तक के प्रश्नोंत्तर एवं परीक्षापयोगी प्रश्नोंत्तर |
| | अपू के साथ ढाई साल(सत्यजीत राय)<br>( पाठ्यपुस्तक आरोह भाग–1) | • पाठ का सार<br>• पाठ्यपुस्तक के प्रश्नोंत्तर एवं परीक्षापयोगी प्रश्नोंत्तर |
| जुलाई | मेरे तो गिरधर गोपाल..... (मीरा)<br>( पाठ्य पुस्तक आरोह भाग–1) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | रिपोर्ट लेखन | • अभ्यास पत्रक के माध्यम से । |
| | रचनात्मक कौशल निबंध/ लेखन | • अभ्यास पत्रक के माध्यम से । |
| अगस्त | विदाई–संभाषण (बालमुकुंद गुप्त)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पाठ का सार, व्याख्या<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | सबसे खतरनाक<br>(आओ, मिलकर बचाएँ) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |

| माह | अवधारणा | कौशल<br>श्रवण — कथन — पठन — लेखन — कौशल |
|---|---|---|
| अगस्त | गिल्लू लोहा (शेखर जोशी)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पाठ का सार<br>• पाठ्यपुस्तक के प्रश्नोंत्तर एवं परीक्षापयोगी प्रश्नोंत्तर |
| | आलेख लेखन | • अभ्यास पत्रक के माध्यम से । |
| सितंबर | घर की याद (भवानी प्रसाद मिश्र)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | राजस्थान की रजत बूँदें (अनुपम मिश्र) (पूरक पुस्तक– वितान) | • पाठ का सार, व्याख्या<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| अक्टुबर | चंपा काले–काले अक्षर नहीं चीन्हती (त्रिलोचन)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | जामुन का पेड़ (कृष्णचंदर)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पाठ का सार, व्याख्या<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | गज़ल(दुष्यंत कुमार) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | भारत माता (जवाहरलाल नेहरू)<br>( पाठ्य पुस्तक आरोह– भाग–1)<br>रजनी | • पाठ का सार, व्याख्या<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| नवम्बर | हे! भूख मत मचल<br>हे मेरे जूही के फूल जैसे ईश्वर<br>(अक्क महादेवी)<br>( पाठ्य पुस्तक आरोह– भाग–1) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | आलो–आँधारि (बेबी हालदार)<br>(पूरक पुस्तक– वितान) | • पाठ का सार, व्याख्या<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |

| माह | अवधारणा | कौशल<br>श्रवण – कथन – पठन – लेखन – कौशल |
|---|---|---|
| नवम्बर | सबसे खतरनाक (अवतार सिंह पाश) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| | आओ मिलकर बचाएँ (निर्मला पुतुल) | • पदों का सार<br>• काव्यांशों पर आधारित प्रश्नोंत्तर<br>• पाठ्यपुस्तक के प्रश्नोंत्तर<br>• परीक्षोपयोगी महत्त्वपूर्ण प्रश्नोंत्तर |
| दिसंबर | पुनरावृत्ति | • पुनरावृत्ति (लेखन कौशल एवं पाठ्यपुस्तक) |
| जनवरी | पुनरावृत्ति | • पुनरावृत्ति (लेखन कौशल एवं पाठ्यपुस्तक) |

# PHYSICS

***Rationale:***

***Physics lies at the heart of the natural sciences***

*Almost any scientific problem can be approached using the ideas and methods of physics.*

***Physics explains how the world works***

*Physics helps us understand why things in the natural world happen the way they do. It enables us to explain, for example, how buildings move in an earthquake, why a car takes as long as it does to come to a stop when the brakes are applied, why the sky is blue and grass green, and why the supports of a bridge have to be of certain dimensions.*
*Physicists – and students studying physics – are able to use their understanding to predict how an object will behave under particular conditions, improve the functioning of everyday objects, and envisage totally new developments.*

***Physics is useful and exciting***

*The knowledge and processes used by physics have produced new and exciting technologies that are in everyday use. Almost any example of modern technology has its origins in mechanics, optics, electronics, thermodynamics, nuclear physics, or some other branch of physics. Physicists are challenged to discover how nature works; along the way, they get to know the excitement of explaining, seeing, or doing something that no one has understood or done before.*

***Learning in physics opens up career opportunities***

*Learning in physics will come in useful no matter what you go on to do. Employers value the kinds of skills that studying physics develops: the ability to grasp things quickly, focused solution finding, plus problem solving, analytical, mathematical, and IT skills.*
*People with a background in physics are found in all these areas and more: telecommunications, space, medicine, finance, law, music, television, environment, architecture, civil engineering, sports, gaming, energy, and education.*

***Objectives:***

*The Physics Department seeks to produce competent, productive physics graduates, as well as to contribute to the science education of all students. Upon successful completionof the prescribed program, the student will be able to*

1. *Demonstrate a breadth and depth of knowledge of physics which would lead to a successful career in a physics related profession such as engineering or education*
2. *Demonstrate a breadth and depth of knowledge of physics which would allow individuals to begin a graduate program in physics;*
3. *Apply analytical skills to such diverse professions as law, medicine, finance, telecommunications, etc.;*
4. *Demonstrate proficiency in the application of physics to problems of science, society, and technology*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *Physical world and measurement (Units and Measurements)* | • *Need of measurement*<br>• *Units of measurements*<br>• *System of units*<br>• *SI units*<br>• *Fundamental and derived units*<br>• *Significant figures*<br>• *Determining the uncertainity in result*<br>• *Dimensions of physical quantities*<br>• *Dimensional analysis and its applications* |
| | *Kinematics (Motion in straight line)* | • *Frame of reference*<br>• *Motion in a straight line*<br>• *Elementary concepts of differentiation and Integration for describing motion* |
| | *Practicals* | • ***Experiment No. 1*** *- To measure diameter of a small sphericial / cylindrical body and to measure internal diameter and dept of a given beaker / calorimenter using Vernier Callipers and hence find its volume.* |
| | *Kinematics Motion in straight line (Contd…)* | • *Uniform and non-uniform motion*<br>• *Average speed and average velocioty*<br>• *Instantaneous velocity*<br>• *Uniformly accelerated motion*<br>• *Velocity-Time and Position-Time graphs*<br>• *Relations for uniformly accelerated motion (graphical and calculus treatment)* |
| | *Practicals* | • ***Experiment No. 2*** *- To measure diameter of agiven wire and thickness of a given sheet using screw gauge.* |
| *June* | *Motion in a plane* | • *Scalar and Vector quantities*<br>• *Position and displacement vectors*<br>• *General vectors and their notations*<br>• *Equality of vectors*<br>• *Multiplication of vectors by real number*<br>• *Addition and subtraction of vectors*<br>• *Unit Vector*<br>• *Resolution of vector in a plane*<br>• *Rectangular components*<br>• *Scalar and Vector product of vectors* |
| | *Motion in a Plane(Contd…)* | • *Motion in a plane*<br>• *Cases of uniform velocity and uniform acceleration*<br>• *Projectile motion*<br>• *Uniform circular motion.* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *July* | *Laws of Motion* | • *Intuitive concept of Force*<br>• *Inertia*<br>• *Newton's first law of motion*<br>• *Momentum and Newton's second law of motion*<br>• *Impulse*<br>• *Newton's third law of motion*<br>• *Law of conservation of linear momentum and its applications* |
| | *Laws of Motion* | • *Equilibrium of concurrent forces*<br>• *Static and kinetic friction*<br>• *Laws of friction*<br>• *Rolling friction, lubrication,*<br>• *Dynamics of uniform circular motion*<br>• *Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road)*<br>• *Motion in a vertical circle* |
| | *Work,energy and power* | • *Work done by a constant force and a variable force*<br>• *Kinetic energy, work- energy theorem power*<br>• *Notion of potential energy, potential energy of a spring*<br>• *Conservative forces and Non conservative forces*<br>• *Elastic and inelastic collisions in one and two dimensions* |
| | *Practicals* | • ***Experiment No. 3*** *- To determine volume of an irregular lamina using screw gauge.* |
| *August* | *System of particles and Rotational motion* | • *Centre of mass of a two - particle system, momentum conservation and centre of mass motion*<br>• *Centre of mass of a rigid body*<br>• *Centre of mass of uniform rod*<br>• *Moment of Force, Torque and Angular momentum*<br>• *Law of conservation of angular momentum and its applications*<br>• *Equilibrium of rigid bodies, rigid body rotation and equations of rational motion,*<br>• *Comparison of linear and rotational motions.*<br>• *Moment of inertia, radius of gyration.*<br>• *Values of moments of inertia for simple geometrical objects (no derivation)* |
| | *Practicals* | • ***Experiment No. 4*** *- To determine radius of cuvature of agiven spherical surface by a spherometer.* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| | *Gravitation* | • *Kepler's laws of planetary motion*<br>• *Universal law of Gravitation*<br>• *Acceleration due to gravity and its variation with altitude and depth.*<br>• *Gravitational potential energy and Gravitational potential*<br>• *Escape speed Orbital Velocity of a satellite*<br>• *Energy of an orbiting satellite.* |
| *September* | *Practicals* | • ***Experiment No. 5*** *- To find the force constant of a helical spring by plotting a graph between load and extension.* |
| *September* | *Properties of Bulk Matter (Mechanical Properties of Solids)* | • *Elasticity, Stress-strain relationship, Hooke's Law*<br>• *Young's modulus*<br>• *Bulk modulus*<br>• *Shear modulus of rigidity (qualitative idea only)*<br>• *Poisson's ratio*<br>• *Elastic energy*<br>• *Application of elastic behavior of material (qualitative idea only)* |
| *October* | *Properties of Bulk Matter (Mechanical Properties of Fluids)* | • *Pressure due to a fluid colump*<br>• *Pascal's law and its applications (hydraulic lift and hydraulic brakes)*<br>• *Effect of gravity on fluid pressure*<br>• *Viscosity*<br>• *Stoke's law,*<br>• *Terminal velocity*<br>• *Streamline and turbulent flow*<br>• *Critical velocity*<br>• *Bernoulli's theorem and its simple applications*<br>• *Surface energy and surface tension*<br>• *Angle of contact*<br>• *Excess of pressure across a curved surface*<br>• *Application of surface tension ideas to drops bubbles*<br>• *Capillary rise* |
| | *Practicals* | • ***Experiment No. 6*** *- To determine the coefficient of viscosity of a given viscous liquid by measuring terminal veclotiy of a given spherical body.*<br>• ***Experiment No. 7*** *- To study the relationship between the temperature of a hot body and time by plotting a cooling curve.* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Properties of Bulk Matter (Thermal Properties of Matter)* | • *Heat, temperature*<br>• *thermal expansion of solids, liquids and gases*<br>• *anomalous expansion of water*<br>• *Specific heat capacity Cp and Cv*<br>• *Calorimetry*<br>• *Change in state – latent heat capacity*<br>• *Heat transfer – conduction, convection and radiation*<br>• *Thermal conductivity*<br>• *Qualitative ideas of black body radiation*<br>• *Wein's displacement law*<br>• *Stefan's law* |
| *October* | *Thermodynamics* | • *Thermal equilibrium and definition of temperature zeroth law of thermodynamics*<br>• *Heat, Work and Internal energy*<br>• *First law of thermodynamics*<br>• *Second law of thermodynamics*<br>• *Thermodynamic state variable and equation of state*<br>• *Change in condition of gaseous state – isothermal, adiabatic reversible, irrevasible and cyclic process.* |
| *November* | *Behavior of perfect gases and Kinetic Theory of Gases*<br>*Kinetic Theory* | • *Equation of state of a perfect gas*<br>• *Work done in compressing of gas*<br>• *Kinetic theory of gases - assumptions, concept of pressure.*<br>• *Kinetic interpretation of temperature, rms speed of gas molecules*<br>• *Degrees of freedom*<br>• *Law of equi-partition of energy (statement only)*<br>• *Applications of specific heat capacities of gases*<br>• *Concepts of mean free path*<br>• *Avogadro's number* |
| | *Practicals* | • ***Experiment No. 8** - To study the relation between frequency and length of a given wire under constant tension using sonometer.* |
| | *Oscillations and waves(Oscillations)* | • *Periods motion - time period, frequency, displacement as a function of time*<br>• *Periodic functions and their application*<br>• *Simple harmonic motion and its equations of motion phase*<br>• *Oscillations of a loaded spring,restoring force and force constant*<br>• *Energy in SHM Kinetic and potential energies*<br>• *Simple pendulum derivation of expression for its time period* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *November* | *Oscillations and waves(Waves)* | • *Wave motion: Transverse and longitudinal waves*<br>• *Speed of travelling wave*<br>• *Displacement relation for a progressive wave*<br>• *Principle of superposition of waves*<br>• *Reflection of waves*<br>• *Standing waves in Strings*<br>• *Organ pipes – fundamental mode of harmonics*<br>• *Beats* |
| *December* | *Revision* | |
| *January* | *Revisions* | |

# CHEMISTRY

***Rationale***

*Higher Secondary is the most crucial stage of school education because at this juncture specialized discipline based, content -oriented courses are introduced. Students reach this stage after 10 years of general education and opt for Chemistry with a purpose of pursuing their career in basic sciences or professional courses like medicine, engineering, technology and study courses in applied areas of science and technology at tertiary level. Therefore, there is a need to provide learners with sufficient conceptual background of Chemistry, which will make them competent to meet the challenges of academic and professional courses after the senior secondary stage. The new and updated curriculum is based on disciplinary approach with rigour and depth taking care that the syllabus is not heavy and at the same time it is comparable to the international level. The knowledge related to the subject of Chemistry has undergone tremendous changes during the past one decade. Many new areas like synthetic materials, bio -molecules, natural resources, industrial chemistry are coming in a big way and deserve to be an integral part of chemistry syllabus at senior secondary stage. At international level, new formulations and nomenclature of elements and compounds, symbols and units of physical quantities floated by scientific bodies like IUPAC and CGPM are of immense importance and need to be incorporated in the updated syllabus. The revised syllabus takes care of all these aspects. Greater emphasis has been laid on use of new nomenclature, symbols and formulations, teaching of fundamental concepts, application of concepts in chemistry to industry/ technology, logical sequencing of units, removal of obsolete content and repetition, etc.*

***Objectives***

*The curriculum of Chemistry at Senior Secondary Stage aims to:*

- *promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.*
- *make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.*
- *expose the students to various 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.*
- *equip students to face various challenges related to health, nutrition, environment, population, weather, industries and agriculture.*
- *develop problem solving skills in students.*
- *expose the students to different processes used in industries and their technological applications.*
- *apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering etc.*
- *acquaint students with different aspects of chemistry used in daily life.*
- *develop an interest in students to study chemistry as a discipline.*
- *integrate life skills and values in the context of chemistry.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | ***Some Basic Concepts of Chemistry*** | • *General Introduction: Importance and scope of chemistry.*<br>• *Nature of matter*<br>• *Laws of chemical combination*<br>• *Dalton's atomic theory*<br>• *Concept of elements, atoms and molecules*<br>• *Atomic and Molecular mass*<br>• *Mole concept and molar mass*<br>• *Percentage composition*<br>• *Empirical and Molecular Formulae*<br>• *Chemical reactions*<br>• *Stoichiometry and calculations based on stoichiometry* |
| | *Structure of Atom* | • *Discovery of Electron, Proton and Neutron.*<br>• *Atomic number, isotopes and isobars*<br>• *Thomson's model and its limitations*<br>• *Rutherford's model and its limitations* |
| | ***Practicals*** | *Volumetric Analysis: (Acid Base Titration)* |
| *June* | ***Structure of Atom (contd.…)*** | • *Bohr's model and its limitations*<br>• *Concept of shell and subshells, dual nature of matter and light*<br>• *De Broglie's relationship*<br>• *Heisenberg uncertainty Principle*<br>• *Concept of orbitals*<br>• *Quantum numbers*<br>• *Shape of s, p and d orbitals*<br>• *Rules forfilling electrons in orbitals-*<br>• *Aufbauprinciple*<br>• *Pauli's exclusion principle*<br>• *Hund's rule*<br>• *Electronic configuration of atoms*<br>• *Stability of half filled and completely filled orbitals* |
| | ***Practicals*** | *Volumetric Analysis: (Acid Base Titration)* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *July* | ***Classification of Elements and Periodicity in Properties*** | • *Significance of classification*<br>• *Brief history of the development of the periodic table*<br>• *Modern periodic law and the present form of periodic table,*<br>• *Periodic trends in properties of elements- atomic radii, ionic radii, inert gas radii*<br>• *Ionization enthalpy.*<br>• *Electron gain enthalpy, electronegativity, valency.*<br>• *Nomenclature of elements with atomic number greater than 100* |
| | ***Chemical Bonding and Molecular Structure*** | • *Valence electrons, ionic bond, covalent bond*<br>• *Bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory.*<br>• *Resonance, geometry of covalent molecules*<br>• *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)* |
| *August* | ***Chemical Bonding and Molecular Structure (contd.)*** | • *Hydrogen bond* |
| | ***Chemical Thermodynamics*** | • *Concepts of Systems and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions.*<br>• *First law of thermodynamics-internal energy and enthalpy, heat capacity and specific heat.*<br>• *Measurement of $\Delta U$ and $\Delta H$, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution.*<br>• *Second law of thermodynamics (brief introduction)*<br>• *Introduction of entropy as a state Function, Gibbs energy change for spontaneous and non-spontaneous process, criteria for equilibrium.*<br>• *Third law of thermodynamics (brief introduction)* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| ***August*** | ***Practicals*** | *Qualitative analysis* |
| ***September*** | ***Equilibrium*** | • *Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant,*<br>• *Factors affecting equilibrium-Le Chatelier's principle,*<br>• *Ionic equilibrium-ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids,*<br>• *Acid strength, concept of pH,*<br>• *Henderson's Equation, hydrolysis of salts (elementary idea), buffer solution,*<br>• *Solubility product, common ion effect (with illustrative examples)* |
| | ***Practicals*** | • *Qualitative Analysis* |
| ***October*** | ***Redox Reactions*** | • *Concept of oxidation and reduction, redox reactions*<br>• *oxidation number*<br>• *Balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number,*<br>• *Applications of redox reactions.* |
| | ***Organic Chemistry-Some Basic Principles and Techniques*** | • *General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds*<br>• *Electronic displacements in a covalent bond: Inductive effect,* |
| | ***Practicals*** | *Element detection in organic compound* |
| ***November*** | ***Organic Chemistry-Some Basic Principles and Techniques(contd.)*** | • *Electronic displacements in a covalent bond: electromeric effect, resonance and hyper conjugation*<br>• *Homolytic and heterolytic fission of a covalent bond: free radical carbocation, carbanions electrophiles and nucleophiles, types of organic reactions.* |
| | ***Practicals*** | *Element detection in organic compound* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *December* | *Hydrocarbons* | • *Classification of Hydrocarbons: Aliphatic Hydrocarbons*<br>• *Alkanes-Nomenclature, isomerism, conformation (enthane only) physical properties, chemical reactions including free radical mechanism of halogenations combustion and pyrolysis.*<br>• *Alkenes-Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markonikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.*<br>• *Alkynes–Nomenclature, structure of triple bond (ethyne),*<br>• *Physical properties, method of preparation, chemical reactions, acidic character of alkynes, addition reaction of-hydrogen, hydrogen halides and water*<br>• *Aromatic hydrocarbons: Introduction*<br>• *IUPAC nomenclature*<br>• *benzene: resonance, aromaticitiy*<br>• *chemical properties: mechanism of electrophilic substituion, Nitration sulphonation, Halogenation Friedel Craft's alkylation and acylation*<br>• *directive influence of functional group in monosubstituted benzene*<br>• *Carcinogenicity and toxicity.* |
| *January* | *Revision* | |
| *February* | *Revision* | |

# BIOLOGY

***Rationale:***

*The present syllabus reinforces the ideas introduced till the secondary classes. It provides the students with new concepts along with an extended exposure to contemporary areas of the subject. The syllabus also aims at emphasizing on the underlying principles that are common to both animals and plants as well as highlighting the relationship of biology with other areas of knowledge. The format of the syllabus allows a simple, clear, sequential flow of concepts without any jarring jumps. The syllabus also stresses on making better connection among biological concepts. It relates the study of biology to real life through the use of technology. It links the discoveries and innovation in biology to everyday life such as environment, industry, health and agriculture. The updated syllabus also focuses on reducing the curriculum load while ensuring that ample opportunities and scope for learning and appreciating basic concepts of the subject continue to be available within its framework.*

***Objective:***

- *Promote understanding of basic principles of Biology*
- *Encourage learning of emerging knowledge and its relevance to individual and society*
- *Promote rational/Scientific attitude towards issues related to population, environment and development*
- *Enhance awareness about environmental issues, problems and their appropriate solutions*
- *Create awareness amongst the learners about diversity in the living organisms and developing respect for other living beings*
- *Appreciate that the most complex biological phenomena are built on essentially simple processes.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | 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 envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus. |
| | Chapter-10:Cell Cycle and Cell Division | • Cell cycle, mitosis, meiosis and their significance |
| | Chapter-9:Biomolecules | • Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids. |
| June | Chapter-9:Biomolecules (contd) | • Enzyme - types, properties, enzyme action. (Topics excluded: Nature of Bond Linking Monomers in a Polymer, Dynamic State of Body Constituents – Concept of Metabolism, Metabolic Basis of Living, The Living State) |
| | Chapter-14:Breathing and Exchange of Gases | • Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders. |
| | Chapter-15:Body Fluids and Circulation | • Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; Regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure. |
| | Practical | • Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.<br>• Study of the rate of respiration in flower buds/leaf tissue and germinating seeds<br>• Study of osmosis by potato osmometer.<br>• Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb). |
| July | Chapter-16: Excretory Products and their Elimination | • Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant. |
| | Practical | • Test for presence of urea in urine.<br>• Test for presence of sugar in urine.<br>• Test for presence of albumin in urine.<br>• Test for presence of bile salts in urine. |
| | Chapter-17: Locomotion and Movement | • 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 - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout. |

| Month | Concept | Sub-Concept |
|---|---|---|
| August | Chapter-18:Neural Control and Coordination | • Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse.. |
| | | |
| | Chapter-19: Chemical Coordination and Integration | • Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); Role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goitre, diabetes, Addison's disease.<br>• **Note:** Diseases related to all the human physiological systems tobe taught in brief. |
| | | **NOTE: Digestion and Absorption** (only for formative assessment as per CBSE pattern)<br>Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea. |
| | Chapter-11:Photosynthesis in Higher Plants | • Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis |
| September | Chapter-11:Photosynthesis in Higher Plants (contd) | • cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.. |
| | Practical | • Study of distribution of stomata on the upper and lower surfaces of leaves.<br>• Comparative study of the rates of transpiration in the upper and lower surfaces of leaves.<br>• Separation of plant pigments through paper chromatography. |
| | Chapter-12: Respiration in plants | • Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient. |

| Month | Concept | Sub-Concept |
|---|---|---|
| October | Chapter-13: Plant-Growth and Development | • Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; |
| | Chapter-1: The Living World | • Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature |
| | Chapter-2:Biological Classification | • Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids. |
| November | Chapter-3:Plant Kingdom | • Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophyta, Pteridophyta, Gymnospermae (Topics excluded – Angiosperms, Plant Life Cycle and Alternation of Generations) |
| | Chapter-4:Animal Kingdom | • Salient features and classification of animals, non- chordates up to phyla level and chordates up to class level (salient features and at a few examples of each category). |
| | Practical | • Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can be substituted 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). |
| November | Chapter-5: Morphology of Flowering Plants | • Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae |
| | Practical | • . Preparation and study of T.S. of dicot and monocot roots and stems (primary). |
| | | |
| December | Chapter-6: Anatomy of Flowering Plants | Anatomy and functions of tissue systems in dicots and monocots. |
| | Chapter-7: Structural Organisation in Animals | Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of frog |
| | | |
| January | Revision | |
| feburary | Final term exam | |

# BIOTECHNOLOGY

***Rationale:***

*The course in Biotechnology is introduced at +2 stage of Senior Secondary Education. It is now a part of formal education provided after first ten years of schooling under higher secondary sections as an optional subject. With the fast changing economic scenario, technological advancements in biology, the study of biotechnology has become very important.*

*Its syllabus content will give students a firm foundation in basic industrial application of biotechnology and its principles followed in various industries like health, microbiology, genetic engineering and plants and animal tissue culture.*

*In class XI the basic biotechnology application would be followed and in class XII advancements with respect to the techniques of biotechnology would be dealt with.*

***Objectives:***

- *To familiarize the students with genetic engineering techniques*
- *To familiarize the students with the applications of microbiology in industries*
- *To familiarize the students with the applications of biotechnology in health and medicines*
- *To familiarize the students with the computational aspects of biotechnology*
- *To familiarize the students with the applications of biotechnology in biochemistry*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Biotechnology: An overview | • Historical Perspectives<br>• Technology and Applications of Biotechnology<br>• Global market and Biotech Products |
| | Biomolecules: Building Blocks | • Building Blocks of Carbohydrates - Sugars and their Derivatives |
| | Practical | • Jelly, Bread and curd making<br>• Sterilization techniques |
| June | Biomolecules: Building Blocks (Continued) | • Building Blocks of Proteins - Amino Acids |
| | Practical | • Preparation of bacterial growth medium (Nutrient agar, Mac Conkey, EMB, Potato Dextrose Agar) |
| July | Biomolecules: Building Blocks (Continued) | • Building Blocks of Lipids - Simple Fatty Acids, Glycerol and Cholesterol<br>• Building Blocks of Nucleic Acids – Nucleotides |
| | Practical | • Sugar Estimation using Di Nitro Salicylic Acid test (DNS test) |
| August | Macromolecules: Structure & Function | • Carbohydrates - The Energy Givers<br>• Proteins - The Performers<br>• Enzymes - The Catalysts<br>• Lipids and Biomembranes - The Barriers<br>• Nucleic Acids - The Managers |
| | Genetics | • Historical Perspective<br>• Multiple Alleles<br>• Linkage and Crossing Over<br>• Genetic Mapping |
| | Practical | • Blood grouping<br>• Bleeding time<br>• Clotting time<br>• Detection of carbohydrates, proteins and fats in the given unknown food sample |
| September | Genes and Genomes: Structure and Function | • Discovery of DNA as genetic material<br>• DNA replication<br>• Fine structure of the genes |
| | Practical | • Haemoglobin estimation<br>• Cell counting |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | ***Genes and Genomes: Structure and Function (Continued)*** | • *From Gene to Protein*<br>• *Transcription – The basic process*<br>• *Genetic code*<br>• *Translation*<br>• *Mutation and Human genetic disorders* |
| | ***The Basic Unit of Life*** | • *Cell Structure and Components*<br>• *Organization of Life* |
| | ***Practical*** | • *Revision of Practical Start* |
| *November* | ***Cell Growth and Development*** | • *Cell Division*<br>• *Cell Cycle*<br>• *Cell Communication*<br>• *Nutrition*<br>• *Reproduction*<br>• *Immune Response in Animals* |
| *January* | ***Revision*** | |

# CORE MATHEMATICS

*The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. Senior Secondary stage is a launching stage from where the students go either for higher academic education in Mathematics or for professional courses like Engineering, Physical and Bioscience, Commerce or Computer Applications. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students. Motivating the topics from real life situations and other subject areas, greater emphasis has been laid on application of various concepts.*

***Objectives***

*The broad objectives of teaching Mathematics at senior school stage intend to help the students:*

- *to acquire knowledge and critical understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles, symbols and mastery of underlying processes and skills.*
- *to feel the flow of reasons while proving a result or solving a problem.*
- *to apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.*
- *to develop positive attitude to think, analyze and articulate logically.*
- *to develop interest in the subject by participating in related competitions.*
- *to acquaint students with different aspects of Mathematics used in daily life.*
- *to develop an interest in students to study Mathematics as a discipline.*
- *to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of gender biases.*
- *to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Set Theory | • Definition, Types of Sets, Venn Diagrams, Applications |
| | Relations and Functions | • Definition, Cartesian Product, Representation of Relation, Function, Types of Function, Domain and Range. |
| | Arithmetic Progression | • Arithmetic mean |
| June | Geometric Progression | • General term, Sum of n terms, selection of terms,Geometric mean, Properties and Applications |
| | Trigonometric Function | • Definition, Identities of trig. function |
| | Graphs of T Ratios | • Sinx, cosx, tanx, cosecx, secx, cotx |
| July | Compound Angles | • Expression of sin (A±B), cos (A±B), tan (A±B) |
| | Transformation Formula | • Transformation of Product of trig. ratios in to their sum, sum in to product |
| | Multiple & Submultiple Angles | • Identities related to sin 2x, cos2x, tan 2x, sin 3x, cos3x, tan 3x |
| | Linear in equalities | • Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. |
| August | Complex Number | • Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations.<br>• Algebraic properties of complex numbers.<br>• Argand plane |
| | 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 |
| | Circle | • Definition, various forms of equation of circle |
| September | Conic Section | • Parabola<br>• Ellipse |
| | 3-D coordinate geometry | • Introduction to 3-D, Octants, Distance formula, section formula |
| September | Revision | |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Permutation and Combination* | • *Fundamental theorem of counting, factorial notation, permutation, permutation under certain conditions*<br>• *Combination properties, practical problems, mixed problems* |
| | *Binomial Theorem* | • *Introduction, expansion of $(a+b)^n$, General term, middle term, and simple applications* |
| *November* | *Limits & Derivatives* | • *some standard limits,*<br>• *derivative of function by first principal, product rule and quotient rule* |
| *December* | *Derivatives* | • *Chain rule*<br>• *Mixed problems based on product rule, quotient rule and chain rule* |
| | *Probability* | • *Introduction definitition of terms related to probability, axiomatic probability,* |
| *January* | *Probability (Contd…)*<br><br>*Statistics* | • *addition theorem*<br>• *Measures of dispersion, mean deviation, variance and standard deviation.* |
| *February* | *Revision* | |

# APPLIED MATHEMATICS

*The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. Senior Secondary stage is a launching stage from where the students go either for higher academic education in Mathematics or for professional courses like Engineering, Physical and Bioscience, Commerce or Computer Applications. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students. Motivating the topics from real life situations and other subject areas, greater emphasis has been laid on application of various concepts.*

***Objectives***

*The broad objectives of teaching Mathematics at senior school stage intend to help the students:*

- *to acquire knowledge and critical understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles, symbols and mastery of underlying processes and skills.*
- *to feel the flow of reasons while proving a result or solving a problem.*
- *to apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.*
- *to develop positive attitude to think, analyze and articulate logically.*
- *to develop interest in the subject by participating in related competitions.*
- *to acquaint students with different aspects of Mathematics used in daily life.*
- *to develop an interest in students to study Mathematics as a discipline.*
- *to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of gender biases.*
- *to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *SETS* | • *Definition*<br>• *Representation,types*<br>• *Operations on sets*<br>• *Practical problemes* |
| | *RELATIONS* | • *Definition*<br>• *Domain, range of a relation*<br>• *Types of a relation* |
| | *Binary numbers* | • *Binary numbers, decimal numbers*<br>• *Conversion from binary to decimal*<br>• *Conversion from decimal to binary* |
| | *Indices and logarithms* | • *Introduction,laws of exponants*<br>• *Introduction, laws of logarithms* |
| *June* | *Arithmatic progression* | • *Definition, nth term, sum to n terms*<br>• *Properties of AP*<br>• *Arithmatic mean* |
| | *Geometric progression* | • *Definition, sum, sum to infinite g.p*<br>• *Geometric mean*<br>• *Relation between AM and GM* |
| | *Quantitative apptitude* | • *Clock: problems on clock*<br>• *Seating arrangement*<br>• *Calender* |
| *July* | *Quantitative apptitude* | • *Time work and distances* |
| | *Functions*<br><br><br><br>*Limits*<br><br><br>*Continuity* | • *Definition*<br>• *Domain and range of a function*<br>• *Graphs of real functions*<br>• *Introduction*<br>• *Concept*<br>• *Limits by factorization, rationalization*<br>• *Definition*<br>• *Continuity of a real function* |
| *August* | *Differentiation* | *Definition*<br>*Darivative of composite , implicit, exponentials, logarithmic functions* |
| | *Mathematical reasoning* | *Odd man out*<br>*Blood relation*<br>*Coading-decoaling* |

| Month | Concept | Sub-Concept |
|---|---|---|
| August | Straight lines | • Slope of a line<br>• Equations of line in different forms<br>• Angle between two lines<br>• Distance of a point from a line |
| September | Circle<br><br>Parabola<br><br>Permutations | • Standard equation of circle<br>• General equation of a circle<br>• Diameter form of a circle<br>• Standerd equation of a parabola<br>• Factorial notations<br>• Principle of counting<br>• Permutation under certain conditions |
| October | Combination<br><br>Probability<br><br>Statistics | • Combination when all objects distinct<br>• Mixed problem<br>• Conditional probability<br>• Measures of dispersion<br>• Mean, variance and standard deviation |
| November | Annuties<br><br>Taxation | • Present value of annuity<br>• Future value of annuity<br>• GST , CGST, Income Tax |
| December | Revision | |
| January | Revision | |
| February | Revision | |

# ECONOMICS

## *Rationale*

*Economics is one of the social sciences, which has great influence on every human being. As economic life and the economy go through changes, the need to ground education in children's own experience becomes essential. While doing so, it is imperative to provide them opportunities to acquire analytical skills to observe and understand the economic realities.*

*At senior secondary stage, the learners are in a position to understand abstract ideas, exercise the power of thinking and to develop their own perception. It is at this stage, the learners are exposed to the rigour of the discipline of economics in a systematic way.*

*The economics courses are introduced in such a way that in the initial stage, the learners are introduced to the economic realities that the nation is facing today along with some basic statistical tools to understand these broader economic realities. In the later stage, the learners are introduced to economics as a theory of abstraction.*

*The economics courses also contain many projects and activities. These will provide opportunities for the learners to explore various economic issues both from their day-to-day life and also from issues, which are broader and invisible in nature. The academic skills that they learn in these courses would help to develop the projects and activities. The syllabus is also expected to provide opportunities to use information and communication technologies to facilitate their learning process.*

***Objectives:***

- *Understanding of some basic economic concepts and development of economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.*
- *Realisation of learners' role in nation building and sensitivity to the economic issues that the nation is facing today.*
- *Equipment with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond senior secondary stage.*
- *Development of understanding that there can be more than one view on any economic issue and necessary skills to argue logically with reasoning.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | ***Unit–I***<br>***Introduction*** | ***Chapter– 1[Concept of Economics and Significance of Statistics in Economics]***<br>*Concept of Economics*<br>• *What is Statistics,*<br>• *Scope of statistics in Economics*<br>• *Functions and Importance of Statistics in Economics* |
| | ***Unit- 2***<br>***Collection , organization and presentation of data*** | ***Chapter– 2 [ Collection of Data]***<br>• *Sources of data- Primary and Secondary Data*<br>• *How basic data is collected with concepts of Sampling* |
| | ***Unit–3***<br>***[ Statistical Tools and Interpretation]*** | ***Chapter– 9 [ Measure of Central Tendency– Arithmetic Mean]***<br>• *Introduction and Meaning*<br>• *Meaning of Arithmetic Mean*<br>• *Individual Series , Discrete Series and Continuous Series*<br>***Chapter– 10[ Measures of Central Tendency– Median and Mode***<br>• *Introduction ,*<br>• *Computation of Median – Individual, Discrete and Continuous Series*<br>• *Median in Special Cases , Graphic Location of Median*<br>• *Merits and Demerits of Median,*<br>• *Introduction ,*<br>• *Mode-Calculation of Mode – Individual, Discrete and Continuous Series*<br>• *Mode in Special Cases ,Mode by Graphical Method ,*<br>• *Merits and Demerits of Mode* |
| *June* | ***Unit- 2***<br>***Collection , organization and presentation of data*** | ***Chapter– 3 [ Census and Sample Method]***<br>• *Methods of collecting data;*<br>• *Some important sources of secondary data*<br>*Census of India and National Sample Survey Organisation* |
| | ***Unit-4***<br>***[ Introduction]*** | ***Chapter- 1[ Economics and Economy]***<br>• *Meaning of Economics, Microeconomics and Macroeconomics*<br>• *Economy and Economic problem*<br>• *Normative and Positive Economics*<br>***Chapter- 2 [ Central problems of an economy]***<br>• *Economic problem*<br>• *What, How and For Whom to Produce*<br>• *Opportunity Cost*<br>• *Production possibility Curve (PPF/PPC)* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *July* | *Unit–5*<br>*[ Consumer's Equilibrium and Demand]* | *Chapter– 3 [Consumer's Equilibrium- Utility Analysis ]*<br>• *Introduction*<br>• *Concept of utility, Total Utility, Marginal Utility*<br>• *Cardinal utility approach*<br>• *Law of diminishing marginal utility*<br>*Conditions of Consumer 's equilibrium using Cardinal utility approach*<br><br>*Chapter–4 [Consumer's Equilibrium- Indifference Curve Analysis ]*<br>• *Ordinal utility approach*<br>• *Consumer's Budget - Budget Set and Budget line*<br>• *Preferences of the consumer (indifference curve, indifference map)*<br>• *Conditions of consumer's equilibrium-Ordinal Approach*<br><br>*Chapter– 5 [Theory of Demand]*<br>• *Meaning of Demand*<br>• *Demand Schedule – Individual and Market Demand*<br>• *Demand Curve – Individual and Market*<br>• *Determinants of Individual Demand and Market Demand*<br>• *Demand Schedule and Demand Curve, slope of Demand Curve*<br>• *Law of Demand*<br>• *Movement Along the Demand Curve (Change In Quantity Demanded)*<br>• *Shift in Demand Curve (Change In Demand)*<br>• *Movement along Demand Curve Vs. Shift in Demand Curve*<br>• *Substitute Goods and Complementary Goods*<br>*Normal goods and Inferior goods* |
| *August* | *Unit- 2*<br>*Collection , organization and presentation of data* | *Chapter-4 [Organisation of Data]*<br>• *Organisation of Data-Meaning*<br>• *Types of variables*<br>• *Frequency Distribution.*<br><br>*Chapter- 5 [Tabular Presentation]*<br>• *Introduction*<br>• *Essentials of a good table*<br>• *Guide lines for the construction of a table*<br>• *Parts and Types of Table* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *August* | *Unit–5*<br>*[ Consumer's Equilibrium and Demand]*<br><br>*Unit–6*<br>*[ Producer Behaviour and Theory of Supply]* | ***Chapter– 6 [Price Elasticity of Demand]***<br>• *Concept of Price Elasticity of Demand*<br>• *Factors affecting Price Elasticity of Demand*<br>• *Degrees of Elasticity of Demand*<br>• *Percentage method of Measuring Price Elasticity of Demand*<br>• *Total Expenditure method of Measuring Price Elasticity of Demand*<br><br>***Chapter-7 [ Production Function and Returns to a Factor]***<br>• *Production function -Meaning*<br>• *Short Run and Long Run Production Function*<br>• *Variable Factors and Fixed Factors*<br>• *Total Product, Average Product and Marginal Product*<br>• *Returns To A Factor: Law Of Variable Proportions*<br>• *Relationship Between TP and MP*<br>*Relationship Between AP and MP* |
| *September* | *Unit- 2*<br>*Collection , organization and presentation of data* | ***Chapter– 6 [ Diagrammatic Presentation of Data]***<br>• *Introduction*<br>• *General rules for constructing Diagrams and graphs*<br>• *Geometric forms (bar diagrams and pie diagrams)* |
| | *Unit- 2*<br>*Collection , organization and presentation of data* | ***Chapter–7 [ Frequency Diagrams]***<br>• *Frequency Diagrams-Histogram, Polygon and Ogive*<br>***Chapter–8[ Arithmetic Line – Graphs or Time Series Graphs]***<br>• *Construction of Graphs*<br>• *Rules for constructing a Graph*<br>• *Time Series Graphs (Arithmetic Line Graphs)*<br>• *Limitations of Diagrammatic and Graphic Presentation* |
| *October* | *Unit–3*<br>*[Statistical Tools and Interpretation]* | ***Chapter– 8 [Concepts of Cost]***<br>• *Introduction and Meaning of Cost*<br>• *Short Run Costs- Total Cost, Total Fixed Cost, Total Variable Cost; Average Cost; Average Fixed Cost, Average Variable Cost and Marginal Cost*<br>*Relationship between Short Run Cost Curves*<br><br>***Chapter– 9 [Concept of Revenue]***<br>• *Meaning and Concept of Revenue*<br>• *Meaning of total, average and marginal revenue*<br>• *Relationship Between types of Revenue*<br><br>***Chapter– 10 [Producer's Equilibrium]***<br>• *Introduction and Meaning of Producer's Equilibrium*<br>*Conditions of Producer's Equilibrium using MR-MC Approach* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *November* | *Unit–3*<br>*[Statistical Tools and Interpretation]* | *Chapter– 11 [ Correlation]*<br>• *Introduction – Concept ,Definition and properties*<br>• *Types and Degree of Correlation,*<br>• *Scatter Diagram Karl Pearson's Coefficient of Correlation (two variables ungrouped data)*<br>*Spearman's Rank Correlation Coefficient (Non-Repeated Ranks and Repeated Ranks).*<br>*Chapter– 12 [ Index Numbers]*<br>• *Introduction , Meaning of Index Numbers*<br>• *Types of Index Numbers -*<br>*Wholesale Price Index*<br>*Consumer Price Index (CPI)*<br>*Index of Industrial Production*<br>• *Uses of Index Numbers*<br>• *Inflation and Index Numbers*<br>• *Simple Aggregative Method.* |
| | *Unit-7*<br>*[Perfect Competition - Price Determination and simple applications]* | *Chapter- 12 [ Main Market Forms]: Perfect Competition*<br>• *Meaning of Market*<br>• *Perfect Competition – Features* |
| *December* | *Unit–6*<br>*[ Producer Behaviour and Theory of Supply]* | *Chapter– 11 [ Theory of Supply]*<br>• *Meaning of Supply*<br>• *Market Supply and Individual Supply (Schedule )*<br>• *Market Supply and Individual Supply (Curves)*<br>• *Slope of Supply Curve*<br>• *Determinants of Supply (Individual and Market Supply)*<br>• *Law of Supply*<br>• *Movement along the Supply Curve (Change in Quantity Supplied)*<br>• *Shift in Supply curve (Change in Supply)*<br>• *Movement Along Supply Curve Vs. Shift in Supply Curve*<br>• *Price Elasticity of Supply*<br>• *Percentage Method of Measuring Price Elasticity of Supply* |
| *December* | *Revision* | |
| *January* | *Unit-7*<br>*[Perfect Competition - Price Determination and simple applications]* | *Chapter- 13 [ Market equilibrium under Perfect competition and effects of Shifts in Demand and Supply]*<br>• *Determination of market equilibrium under perfect competition*<br>• *Viable and non-viable industry*<br>• *Effects of changes in demand and supply on market equilibrium(Change in demand , Change in supply and Changes in both demand and supply)*<br>• *Special cases*<br>• *Simple application of tools of demand and supply:*<br>*Price Ceiling and Price Floor* |
| *January* | *Revision* | |
| *February* | *Revision* | |

# BUSINESS STUDIES

***Rationale:***

*The courses in Business Studies is introduced at + 2 stage of Senior Secondary Education as formal commerce education is provided after first ten years of schooling. Therefore, it becomes necessary that instructions in these subjects are given in such a manner that students have a good understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society.*

*The course in Business Studies will prepare students to analyse, manage, evaluate and respond to changes -which affect business. It provides a way of looking at and interacting with the business environment. It recognizes the fact that business influences and is influenced by social, political, legal and economic forces, it allows students to appreciate that business is an integral component of society and develops an understanding of many social and ethical issues.*

*Therefore, to acquire basic knowledge of the business world, a course in Business Studies would be useful. It also informs students of a range of study and work options and bridges the gap between school and work.*

***Objectives***

- *To develop students with an understanding of the processes of business and its environment;*
- *To acquaint students with the dynamic nature and inter-dependent aspects of business;*
- *To help students appreciate the economic and social significance of business activity and the social cost and benefits arising there from;*
- *To enable students to act more effectively and responsibly as consumers, employers, employees and citizens;*
- *To develop a business attitude and skills in students;*
- *To inculcate appropriate attitude and develop skills among students to pursue higher education, world of work including self employment.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *APRIL* | ***Unit 1: Evolution and Fundamentals of Business*** | • *History of Trade and Commerce in India: Indigenous Banking System, Rise of Intermediaries, Transport, Trading Communities: Merchant Corporations, Major Trade Centres, Major Imports and Exports, Position of Indian Sub-Continent in the World Economy.*<br>• *Business – meaning and characteristics*<br>• *Business, profession and employment Concept*<br>• *Objectives of business*<br>• *Classification of business activities - Industry and Commerce*<br>• *Industry-types: primary, secondary, tertiary Meaning and subgroups*<br>• *Commerce-trade: (types-internal, external; wholesale and retail) and auxiliaries to trade; (banking, insurance, transportation, warehousing, communication, and advertising) – meaning*<br>• *Business risk-Concept* |
| | ***Unit–2 Forms of Business Organisation*** | • *Introduction*<br>• *Sole Proprietorship-Concept, merits and limitations. (Contd…)* |
| *JUNE* | ***Unit–2 Forms of Business Organisation*** | • *Partnership-Concept, types, merits and limitation of partnership, registration of a partnership firm, partnership deed. Types of partners*<br>• *Hindu Undivided Family Business: Concept*<br>• *Cooperative Societies-Concept, merits, and limitations.*<br>• *Company - Concept, merits and limitations; Types: Private, Public and One Person Company – Concept (Contd…)* |
| *JULY* | ***Unit–2 Forms of Business Organisation*** | • *Formation of company - stages, important documents to be used in formation of a company*<br>• *Choice of form of business organization* |
| | ***Unit–3 Public, Private and Multinational Company*** | • *Introduction*<br>• *Public sector and private sector enterprises – Concept*<br>• *Forms of public sector enterprises: Departmental Undertakings, Statutory Corporations and Government Company*<br>• *Joint venture*<br>• *Multinational Company – Feature., Public private*<br>• *partnership – concept* |
| | | |

| Month | Concept | Sub-Concept |
|---|---|---|
| AUGUST | Unit–4 Business Services | • Introduction<br>• Business services – meaning and types. Banking: Types of bank accounts - savings, current, recurring, fixed deposit and multiple option deposit account<br>• Banking services with particular reference to Bank Draft, Bank Overdraft, Cash credit. E-Banking meaning, Types of digital payments<br>• Insurance – Principles. Types – life, health, fire and marine insurance – concept<br>• Postal Service - Mail, Registered Post, Parcel, Speed Post, Courier - meaning |
| SEPTEMBER | Unit–5 Emerging Modes of Business | • Introduction<br>• E - business: concept, scope and benefits<br>• Project Work |
| | Revision | |
| OCTOBER | Unit–6 Social Responsibilities of Business and Business Ethics | • Introduction<br>• Concept of Social Responsibility<br>• Case of Social Responsibility<br>• Responsibility towards owners, investors, consumers, employees, government and community.<br>• Role of business in environment protection<br>• Business Ethics - Concept and Elements |
| | Unit–7 Sources of Business Finance | • Introduction<br>• Concept of business finance<br>• Owners' funds- equity shares, preferences share, retained earnings (Contd…) |
| NOVEMBER | Unit–7 Sources of Business Finance | • Borrowed funds: debentures and bonds, loan from financial institution and commercial banks, public deposits, trade credit, Inter Corporate Deposits (ICD). |
| | Unit–8 Small Business and Enterprises | • Entrepreneurship Development (ED):Concept, Characteristics and Need. Process of Entrepreneurship Development: Start-up India Scheme, ways to fund start-up. Intellectual Property Rights and Entrepreneurship<br>• Small scale enterprise as defined by MSMED Act 2006 (Micro, Small and Medium Enterprise Development Act)<br>• Role of small business in India with special reference to rural areas<br>• Government schemes and agencies for small scale industries: National Small Industries Corporation (NSIC) and District Industrial Centre (DIC) with special reference to rural, backward areas |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *DECEMBER* | ***Revision*** | |
| | ***Unit–9 Internal Trade*** | • *Introduction*<br>• *Internal trade - meaning and types services rendered by a wholesaler and a retailer*<br>• *Types of retail-trade-Itinerant and small scale fixed shops retailers (Contd…)* |
| *JANUARY* | ***Unit–9 Internal Trade*** | • *Large scale retailers-Departmental stores, chain stores - concept*<br>• *GST (Goods and Services Tax): Concept and key-features* |
| | ***Unit–10 International Business*** | • *International trade: concept and benefits*<br>• *Export trade – Meaning and procedure*<br>• *Import Trade - Meaning and procedure*<br>• *Documents involved in International Trade;indent, letter of credit, shipping order, shipping bills, mate's receipt (DA/DP)World Trade Organization (WTO) meaning and objectives* |
| *FEBRUARY* | ***Revision*** | |

# ACCOUNTANCY

***Rationale:***

*The course in accountancy is introduced at plus two stage of senior second of school education,as the formal commerce education is provided after ten years of schooling. With the fastchanging economic scenario, accounting as a source of financial information has carved out aplace for itself at the senior secondary stage. Its syllabus content provide students a firmfoundation in basic accounting concepts and methodology and also acquaint them with thechanges taking place in the preparation and presentation of financial statements in accordanceto the applicable accounting standards and the Companies Act 2013.*

*The course in accounting put emphasis on developing basic understanding about accounting asan information system. The emphasis in Class XI is placed on basic concepts and process ofaccounting leading to the preparation of accounts for a sole proprietorship firm. The studentsare also familiarized with basic calculations of Goods and Services Tax (GST) in recording thebusiness transactions. The accounting treatment of GST is confined to the syllabus of class XI.*

*The increased role of ICT in all walks of life cannot be overemphasized and is becoming anintegral part of business operations. The learners of accounting are introduced to ComputerizedAccounting System at class XI and XII. Computerized Accounting System is a compulsorycomponent which is to be studied by all students of commerce in class XI; whereas in class XIIit is offered as an optional subject to Company Accounts and Analysis of Financial Statements. This course is developed to impart skills for designing need based accounting database formaintaining book of accounts. The complete course of Accountancy at the senior secondary stage introduces the learners tothe world of business and emphasize on strengthening the fundamentals of the subject.*

***Objectives:***

*1. To familiarize students with new and emerging areas in the preparation and presentationof financial statements.*

*2. To acquaint students with basic accounting concepts and accounting standards.*

*3. To develop the skills of designing need based accounting database.*

*4. To appreciate the role of ICT in business operations.*

*5. To develop an understanding about recording of business transactions and preparationof financial statements.*

*6. To enable students with accounting Firms and company accounts.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Introduction to Accounting | • Accounting: concepts and objectives, as a source of information,<br>• Objectives, Advantages and limitations, types of accounting; users of accounting information and their needs.<br>• Qualitative characteristics of accounting.<br>• Role of Accounting in business |
| | Basic accounting terms | • Basic accounting terms |
| | Accounting equation | • Accounting equation: analysis of transactions using accounting equation |
| | Theory Base of Accounting | • Fundamental accounting assumptions: GAAP: Concept<br>• Basic accounting concept : Business Entity, Money Measurement, Going Concern,<br>• Accounting Period, Cost Concept, Dual Aspect, Revenue Recognition, Matching, Full Disclosure, Consistency, Conservatism, Materiality and Objectivity |
| June | Theory Base of Accounting (Contd…) | Revision<br>• System of Accounting. Basis of Accounting:<br>• Cash basis and accrual basis<br>• Accounting Standards: Applicability in Ind-AS<br>• Goods and Services Tax (GST):<br>• Characteristics and Advantages |
| | Recording of Transactions Journal | • Rules of debit and credit: for assets, liabilities, capital, revenue and expenses<br>• Voucher and Transactions: Source documents and Vouchers, Preparation of Vouchers<br>• Books of original entry: Journal :format and recording |
| July | Processes and basis of accounting | • Ledger - format, posting from journal and subsidiary books, Balancing of accounts |
| | Origin of transactions and preparation of vouchers | • Voucher and Transactions: Source documents and Vouchers, Preparation of Vouchers<br>• |
| | Books of original entry- journal | • Rules of debit and credit: for assets, liabilities, capital, revenue and expenses<br>• Journal :format and recording |
| August | Books of original entry- journal (GST Contd…) | • Goods and Services Tax (GST): |
| | Trial Balance | • Trial balance: objectives and preparation (Balance method only) |
| | Cash book | • Simple Cash Book, Cash Book with Bank column and Petty Cash Book |

| | | |
|---|---|---|
| | *ledger* | • *format of ledger*<br>• *posting from journal to ledger*<br>• *balancing and closing of ledger* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *September* | *Cash book (contd.)* | • *Simple Cash Book, Cash Book with Bank column and Petty Cash Book*<br>• *contra entries* |
| | *Subsidiary books* | • *Other books: purchases book, sales book, purchases returns book, sales returns book and journal proper including simple GST calculation* |
| *October* | *Financial Statements of Sole Proprietorship. (with and without adjustments)* | • *Meaning, objectives and importance; Revenue and Capital Receipts; Revenue and Capital Expenditure; Deferred Revenue expenditure. Opening journalentry. Trading and Profit and Loss Account: Gross Profit, Operating profit and Net profit. Preparation.Balance Sheet: need, grouping and marshalling of assets and liabilities. Adjustments in preparation of financial statements : with respect to closing stock, outstanding expenses,*<br>• *prepaid expenses, accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, manager's commission, abnormal loss, goods taken for personal use/staff welfare, interest on capital, Preparation of Trading and Profit and Loss account and Balance Sheet of a sole proprietorship with adjustments* |
| | *Incomplete Records* | • *Features, reasons and limitations.*<br>• *Ascertainment of profit/loss by Statement of Affairs method( excluding conversion method)* |
| *November* | *Depreciation, Provisions and Reserves* | • *Depreciation: concept need features causes and factors affecting depreciation;*<br>• *Other similar terms: depletion and amortization*<br>• *Methods of computation of depreciation: straight line method, written down value method.*<br>• *Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/ accumulated depreciation account, treatment of disposal of asset.*<br>• *Provisions and reserves: concept, objectives and difference between provisions and reserves; types of reserves- revenue reserve, capital reserve, general reserve and specific reserves difference between revenue reserve and capital reserve.* |
| *December* | *Bank Reconciliation Statement* | • *Bank reconciliation statement- need and preparation.* |

| | | |
|---|---|---|
| | ***Project Work*** | • *Project Work: Complete (Final Accounts with adjustments) Complete Analysis.* |
| ***January*** | ***Rectification of Errors*** | • *Understand the meaning and different types of errors and their effect on trial balance.*<br>• *Develop the skill of identification and location of errors and their rectification and preparation of suspense account.* |
| ***February*** | ***Revision*** | |

# ENTREPRENEURSHIP

***Rationale:***

*Development of school curriculum is a dynamic process responsive to the society and reflecting the needs and aspiration of its learners. Fast changing society deserves changes in educational curriculum particularly to establish relevance to emerging socio-economic environment; to ensure equity of opportunity and participation and finally promoting concern for excellence. In this context the course of entrepreneurship aims at instilling and stimulating human urge for excellence by realizing individual potential for generating and putting to use the inputs, relevant to social prosperity and thereby ensure decent means of living for every individual.*

***Objectives:***

- *Acquiring Entrepreneurial spirit and resourcefulness*
- *Familiarization with various uses of human resource for earning dignified means of living*
- *Understanding the concept and process of entrepreneurship - its contribution in and role in the growth and development of individual and the nation*
- *Acquiring entrepreneurial quality, competency and motivation*
- *Learning the process and skills of creation and management of entrepreneurial venture*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | ***Unit–1***<br>*Entrepreneurship – Concept, Functions and Need.* | • *Entrepreneurship – Concept, Functions and Need.*<br>• *Entrepreneurial functions*<br>• *Commercial functions*<br>• *Managerial functions.*<br>• *Commercial functions* |
| *June* | ***Unit–1***<br>*Entrepreneurship – Concept, Functions and Need.* | • *Myths about Entrepreneurship.*<br>• *Pros and Cons of Entrepreneurship.*<br>• *Process of entrepreneurship* |
| *July* | ***Unit- 2 An Entrepreneur*** | • *Types of Entrepreneurs.*<br>• *Competencies and characteristics.*<br>• *Entrepreneurial Values, Attitudes and Motivation.*<br>• *Business Ethics* |
| *July* | ***Unit- 2 An Entrepreneur*** | • *Intrapreneur: Importance in any organization; Difference Entrepreneur & Inntrapreneur.* |
| *August* | ***Unit 3: Entrepreneurship Journey*** | • *Opportunity Assessment, Business Idea*<br>• *Business Plan and its execution*<br>• *Feasibility studies*<br>• *Continued -Business Plan Preparation.*<br>• *Reasons for success and failure of BP.* |
| *September* | ***Unit 4 :Entrepreneurship as Innovation and Problem Solving*** | • *Entrepreneurs - as problem solvers.*<br>• *Innovations and Entrepreneurial Ventures – Global and Indian*<br>• *Role of Technology – E-commerce and Social Media.*<br>• *Social Entrepreneurship Concept.*<br>• *Business Incubation* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Unit 5 : Understanding The Market* | • *MarketConcept & Types.- Micro and Macro Market Environment*<br>• *Market Research - Concept, Importance and Process.* |
| *November* | *Unit 5 : Understanding The Market* | • *E-Business and E-Commerce*<br>• *Marketing Mix.* |
| | *Unit 6: Business Finance and Arithmeti* | • *Unit of Sale, Unit Price and Unit Cost -for single product or service.*<br>• *Types of Costs - Start up, Variable and Fixed*<br>• *Break Even Analysis - for single product* |
| *December* | *Unit 7: Resource Mobilization* | • *Types of Resources - Human,Financial and Physical and Intangible resources.*<br>• *Selection and utilization of human resources and professionals .*<br>• *Estimatating Financial Requirements.* |
| *January* | *Revision* | |
| *February* | *Revision* | |

# HISTORY

***General Objective:***

- *Detailed study of some themes in ancient, medieval and modern world history. The object would be to study a set of these themes in depth rather than survey the entire chronological span of World history.*
- *They would come to know how historians analyze these sources, the problems and difficulties of interpreting each type of source, and the way a larger picture of an event, a historical process, or a historical figure, is built by looking different types of sources.*

***Specific Objective:***

- *Familiarize the learner with the evolution of man and its expansion all over the world.*
- *Familiarize the learner with early urban centres as economic and social institutions, introduce the ways in which new data can lead to a revision of existing notions of history.*
- *Familiarize the learner with major trends in the political and economic history of the world.*
- *Familiarize the learner with issues in social history, introduce strategies of textual analysis and their use in reconstructing social history.*
- *Discuss the major religious developments, introduce strategies of visual analysis and their use in reconstructing histories of religion.*
- *Familiarize the learner with the major landmarks in political history.*
- *Discuss how colonialism affected local societies and understanding their problems.*
- *Familiarize the learner with the history modern urban centres.*
- *Familiarize the learner with the significant elements of governance in different part of the world.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | EARLY SOCIETIES (SECTION-I)<br>From the beginning of time | • Only introduction |
| | Writing and city life | • Mesopotamia & its geography<br>• Urbanism, development of writing, life in city, trading |
| June | EMPIRES(SECTION-II)<br>An empire across the three continents | • Early empire– Roman<br>• Roman cities- Gender, Literacy, culture<br>• Economic Expansion<br>• Social Hierarchies |
| July | Nomadic Empire | • Origin of Mongol empire<br>• Social & political background<br>• Genghis Khan<br>• Social, political & military organization<br>• Origin of Mongol empire |
| August | CHANGING TRADITIONS (SECTION-III)<br><br>The Three orders | • Introduction to feudalism<br>• First order– The Clergy<br>• Second order– The Nobility<br>• Third order– The Peasants<br>• Factors affecting social & economic relation<br>• Fourth order– New town & people<br>• Political Changes |
| | Changing Cultural Traditions | • Revival of Italian cities<br>• Humanism – Humanist view of history<br>• Science & philosophy–Arab contribution<br>• Artist & Realism, Architecture<br>• Debats within Christianity |
| September | Changing Cultural Traditions (Contd..) | • Renaissance– In the European<br>• Science & philosophy<br>• Revision |
| | | |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Displacing Indigenous Peoples* | • *European Imperialism*<br>• *North America*<br>• *Mutual Perception*<br>• *Gold rush, and the growth of industries*<br>• *Australia – The winds of change* |
| *November* | *Paths to Modernisation* | • *Japan– Political system, Meiji restoration, Modernising the economy, westernization & tradition*<br>• *China– Establishing the Republic, Communist Party of China, Reforms & Two Roads of Modernization*<br>• *Taiwan- Establishing the Republic Korea* |
| *December* | *Revision* | |
| *January* | *Revision* | |
| *February* | *Revision* | |

# POLITICAL SCIENCE

***Rationale:***

*At the senior secondary level students who opt Political Science are given an opportunity to get introduced to the diverse concerns of a Political Scientist. At this level there is a need to enable students to engage with political processes that surround them and provide them with an understanding of the historical context that has shaped the present. The different courses introduce the various streams of the discipline of Political Science; Political Theory, Indian Politics and International Politics. Concerns of the other two streams–Comparative Politics and Public Administration- are accommodated at different places in these courses. In introducing these streams, special care has been taken not to burden the students with the current jargon of the discipline. The basic idea here is to lay the foundations for a serious engagement with the discipline at the under graduation stage.*

***General Objectives:***

- *Enable the students to expand their horizons beyond India and make sense of the political map of contemporary world.*
- *Familiarize the students with some of the key political events and processes in the post cold war era.*
- *Equip students to be conscious of the way in which global events and processes shape our everyday lives.*
- *Strengthen their capacity for political analysis by thinking of contemporary developments in a historical perspective.*

***Specific Objectives:***

- *Enable students to become familiar with some of the key political events and figures in the post-independence period.*
- *Develop skills of political analysis through an understanding of events and processes of recent history.*
- *Develop their capacity to link macro processes with micro situations and their own life.*
- *Encourage the students to take a historical perspective of making sense of contemporary India.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *Part–A : Indian Constitution at work*<br>*1. Constitution: Why and How* | • *The making of the constitution the constituent assembly, procedural achievements and philosophy of the constitution* |
| | *2. Rights in the Indian constitution* | • *The importance of rights, fundamental rights in the Indian constitution, directive principles of state policy, relationship between fundamental rights and directive principles* |
| | *Part–B: Political Theory*<br>*1. Political Theory : An Introduction* | • *What is politics? What do we study in political theory? Putting political theory to practice, why should we study political theory?* |
| *June* | *2. Freedom* | • *The ideal of freedom. What is freedom? Why do we need constraints? Harm principle, negative and positive liberty* |
| | *3. Equality*<br>*Part A:*<br>*3. Election and Representation* | • *Significance of equality. What is equality? Various dimensions of equality. How can we promote equality?*<br>• *Election and Democracy*<br>• *Election System in India*<br>• *Why did India adopt the FPTP system?*<br>• *Reservation of Constituencies*<br>• *Electoral Reform* |
| *July* | *Part–B*<br>*4. Social Justice* | • *What is justice? Just Distribution. Justice as fairness. Pursuing social justice* |
| | *5. Rights* | • *What are rights? Where do rights come from? Legal rights and the state. Kinds of rights. Rights and Responsibilities* |
| | *4. Executive* | • *What is an Executive?*<br>• *What are the different types of executives?*<br>• *Permanent Executive: Bureaucracy* |
| *August* | *Part–A*<br>*5. Legislature* | • *Why do we need a Parliament?*<br>• *Why do we need two houses of Parliament?*<br>• *What does the Parliament do?* |
| | *6. Judiciary* | • *Why do we need an independent judiciary? Structure of the judiciary. Judicial activism, Judiciary and rights, Judiciary and Parliament* |
| | *7. Federalism* | • *What is federalism? Federalism in the Indian constitution, federalism with a strong central govt, conflicts in India's federal system, special provisions* |
| | *Part-B*<br>*6. Citizenship* | • *What is citizenship? Citizens and Nation, Universal Citizenship, Global Citizenship* |
| *September* | *Part– B*<br>*7. Nationalism* | • *Nations and Nationalism, National self determination , Nationalism and Pluralism* |
| | *8. Secularism* | • *What is secularism? What is secular state? The western and the Indian approaches to secularism. Criticism and Rationale of Indian secularism* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Part–A*<br>*8. Local Governments* | • *Why do we need local governments? Growth of local government in India, 73rd and 74th Amendments, Implementations of 73rd and 74th Amendments* |
| | *9. Constitution as a living document* | • *Are constitutions static? The procedure to amend the constitution. Why have there been so many amendments? Basic structure and evolution of the constitution. Constitution as a living document* |
| *November* | *Part–A*<br>*10. The Philosophy of the Constitution* | • *What is meant by philosophy of the constitution?*<br>• *Constitution as means of Democratic Transformation*<br>• *Why doe we need to go back to the Constituent Assembly?*<br>• *What is the Political Philosophy of our Constitution?* |
| *December* | *Revision* | |
| *January* | *Revision* | |
| *February* | *Revision* | |

# GEOGRAPHY

***Rationale:***

*Geography is introduced as an elective subject at the senior secondary stage. After ten years of general education, students branch out at the beginning of this stage and are exposed to the rigours of the discipline for the first time. Being an entry point for the higher education, students choose Geography for pursuing their academic interest and, therefore, need a broader and deeper understanding of the subject. For others, geographical knowledge is useful in daily lives because it is a valuable medium for the education of young people. Its contribution lies in the content, cognitive processes, skills and values that Geography promotes and thus helps the students explore, understand and evaluate the environmental and social dimensions of the world in a better manner.*

***General Objectives:***

*The course of Geography will help learners to:*

- *Familarise with key concepts, terminology and core principles of Geography.*
- *Describe locations and correlate with Geographical Perspectives.*
- *List/ describe what students might see, hear, smell, at a place.*
- *List/describe ways a place is linked with other places.*
- *Compare conditions and connections in one place to another.*
- *Analyze/describe how conditions in one place can affect nearby places.*
- *Identify regions as places that are similar or connected.*

***Specific Objectives:***

- *Describe and interpret the spatial pattern features on a thematic map.*
- *Search for, recognize and understand the processes and patterns of the spatial arrangement of the natural features as well as human aspects and phenomena on the earth's surface.*
- *Understand and analyse the inter- relationship between physical and human environment and utilize such knowledge in reflecting on issues related to community.*
- *Apply geographical knowledge and methods of inquiry to emerging situations or problems at different levels-local, regional, national and global.*
- *Develop geographical skills, relating to collection, processing and analysis of spatial data information and prepration of report including maps and graphs and use of computers where ever possible; and to be sensitive to issues.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *Unit–I [Introduction]* | *Chapter–1 [ India: location]*<br>• *Latitudinal & Longitudinal extent, distance from North to South & East to West, Size, India and its Neighbours* |
| | *Unit–II [Physiography]* | *Chapter–2 [ Structure and Physiography]*<br>• *Geological reasons, Physiography, The North and North Eastern Mountains, The Northern Plains, The Penisular Plateau, The Indian Desert, The Coastal Plains, The Islnads.* |
| | *Unit–2 [Physiography]* | *Chapter–3 [ Drainage System]*<br>• *Drainage Patterns, Himalayan Drainage, Evolution, Himalayan River System, Peninsular River System, Evolution, East and West Flowing Rivers, Usability of River Water.* |
| | *Practical: Introduction to maps* | • *Essential of map making and types, uses* |
| *June* | *Unit-I [ Geography as a Discipline]* | *Chapter–1 [ Geography as a Discipline]*<br>• *Geography as on integrating Discipline, Branches of Geography* |
| | *Unit-II [The Earth]* | *Chapter–2 [ Origin and Evolution of the earth]*<br>• *Early theories, Modern theories, Star formation, Formation of planets, Our solar system, Origin of life*<br>*Chapter–3 [ The Interior of the Earth]*<br>• *Direct and indirect sources, Earthquakes waves, Structure of the earth, Volcanoes, Volcanic landforms* |
| *July* | *Unit–2 [The Earth]* | *Chapter–4 [ Distribution of Oceans and Continents]*<br>• *Continental drift, Ocean floor configuration, distribution of earthquakes and volcanoes, Concept of sea floor, Spreading, Plate tectonics, Movement of Indian plate.* |
| | *Unit–III [ Landforms]* | *Chapter–5 [ Geomorphic Process]*<br>• *Types, Weathering process, Mass movements, Soil formation* |
| | *Practical: Map Scale* | • *L-2 (Map Scale)*<br>• *Method of Scale, Conversion of Scale*<br>• *Bar Scale* |
| *August* | *Unit–3[Climate, Vegetation and Soil]* | *Chapter–4 [ Climate]*<br>• *Weather and climate Unity and Diversity in the Monsoon Climate, Factors that determine the climate of India, Nature of Indian Monsoon, The Rhythem of Seasons, South-East North-West Monsoon, Distribution of Rainfall, Climatic Regions, Monsoon and Economic Life, Global warming1* |
| | *Unit–III[ Landforms]* | *Chapter–6 [ Land forms and their Evolution]*<br>• *Running water, Erosional and depositional Landforms deltas, meanders, braided channels, different types of erosional & depositional land forms.* |
| | *Practical :[Longitude, Latitude & Time]* | • *L–3 (Longitude, Latitude & Time)* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *September* | *Practical: [ Map Projections]* | ***Chapter–4 [ Map Projections]***<br>*Need, Elements and Classification, Conical Projection with one Standard Parallel and Cylindrical Equal Area Projection* |
| | *Unit–IV[ Climate]* | ***Chapter–7 [ Composition and Structure of Atmosphere]***<br>• *Composition of atmosphere, Structure of atmosphere*<br>***Chapter–5[Natural Vegetation]***<br>*Type of forests and distribution, conservation of forests, Wildlife conservation, biosphere reserves.* |
| *October* | *Unit–IV [ Climate]* | ***Chapter–8 [ Solar Radiation Heat Balance and Temperature]***<br>• *Variability of Isolation, Terrestrial Radiation temperature (Inversion)*<br>***Chapter–9 [Atmosphere Circulation and Weather Systems]***<br>• *Atmospheric pressure, Forces affecting the velocity and direction of wind, general circulation of the atmosphere*<br>***Chapter–10 [ Water in the Atmosphere]***<br>*Evaporation & condensation, precipitation types and distribution of rainfall* |
| | *Practical:[ Topographical Maps]* | ***Chapter–5 [ Topographical Maps]***<br>• *Relief Representation*<br>***Chapter–6 [Introduction to Remote Sensing]***<br>• *Stages of Remote Sensing, Sensors, Interpretation of Images and Elements of Visual Interpretation* |
| *November* | *Unit–V [ Water Oceans]* | ***L–12 { Water- (Oceans) }***<br>• *Hydrological Cycle, Relief and division of ocean floor, salinity*<br>***Chapter–13 [ Movements of Ocean Water]***<br>*Waves tides, types ocean currents and its types* |
| *December* | ***Revision*** | |
| *January* | ***Revision*** | |
| *February* | ***Revision*** | |

# COMPUTER SCIENCE

***Objective:***

*The course intends to develop skills related to python Programming which helps students to create a customized application software. Knowledge of network and Boolean algebra is helping students to make closure with computer architecture.The curriculum is designed to develop appropriate technical knowledge as well as the professional skill of the students.*

***Learning Objectives:***

- *Develop basic computational thinking*
- *Explain and use data types*
- *Appreciate the notion of algorithms*
- *Develop a basic understanding of computer systems- architecture, operating system, and cloud computing*
- *Explain cyber ethics, cyber safety, and cybercrime*
- *Understand the value of technology in societies along with consideration of gender and disability issues.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *Computer Systems and Organisation (CSO)* | • *Basic computer organization*<br>• *Types of software*<br>• *Operating System(OS)*<br>• *Boolean logic* |
| *June* | *Computer Systems and Organisation (CSO)* | • *Number System*<br>• *Encoding Schemes* |
| *July* | *Computational Thinking and Programming (PCT-1)* | • *Introduction to Problem-solving*<br>• *Familiarization with the basics of Python programming*<br>• *Knowledge of data types*<br>• *Operators*<br>• *Expressions, statement, type conversion, and input/output*<br>• *Errors- syntax errors, logical errors, and run-time errors* |
| *August* | *Computational Thinking and Programming (PCT-1)* | • *Flow of Control*<br>• *Conditional statements.*<br>• *Iterative Statement*<br>• *Strings* |
| *September* | *Computational Thinking and Programming (PCT-1)* | • *Lists* |
| *October* | *Computational Thinking and Programming (PCT-1)* | • *Tuples*<br>• *Dictionary* |
| *November* | *Computational Thinking and Programming (PCT-1)*<br>*Society, Law and Ethics*<br>*Society, Law and Ethics (SLE-1) – Cyber safety* | • *Introduction to Python modules*<br>• *Digital Society and Netizen*<br>• *Data Protection* |
| *December* | *Society, Law and Ethics*<br>*Society, Law and Ethics (SLE-1) – Cyber safety* | • *Cyber Crime*<br>• *Cyber safety*<br>• *Malware: viruses, trojans, adware*<br>• *E-waste management: proper disposal of used electronic gadgets.*<br>• *Information Technology Act (IT Act)*<br>• *Technology and society.* |
| *January* | *Revision* | |
| *February* | *Revision* | |

# INFORMATICS PRACTICES

***Objective:***

*The course intends to develop skills related to PYTHON Programming which helps students to create customized application software. MySQL is helping students to manage database for real world problems. The course also provide knowledge of Computer System and Emerging Trends. The curriculum is designed to develop appropriate technical knowledge as well as the professional skill of the students.*

***Learning Objectives:***

- *Identify the components of computer system.*
- *Create Python programs using different data types, lists and dictionaries.*
- *Understand database concepts and Relational Database Management Systems.*
- *Retrieve and manipulate data in RDBMS using Structured Query Language*
- *Identify the Emerging trends in the fields of Information Technology.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Introduction to Python | • Basics of Python programming<br>• Execution modes- interactive and script mode<br>• The structure of a program, indentation, identifiers, keywords, constants, variables, operators & its types |
| June | Introduction to Python | • Precedence of operators<br>• Data types, mutable and immutable data types<br>• Statements, Expressions evaluation , Comments, input and output statements |
| July | Introduction to Python | • Data type conversion<br>• Debugging<br>• Control Statements: if-else, if-elif-else, while loop, for loop |
| August | Introduction to Python | • Lists: list operations - creating, initializing, traversing and manipulating lists<br>• List methods and built-in functions – len(),list(),append(),insert(), count(),index(),remove(), pop(), reverse(), sort(), min(),max(),sum()<br>• Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements<br>• Dictionary methods and built-in functions – dict(), len(), keys(), values(), items(), update(), del(), clear()<br>• Introduction to NumPy: Introduction, Creation of NumPy Arrays from List |
| September | Introduction to Computer System | • Evolution of Computing Devices<br>• Components of a Computer System & their interconnections<br>• Input/output devices<br>• Computer Memory:<br>➢ Units of memory<br>➢ Types of memory – primary and secondary<br>➢ Data deletion, its recovery and related security concerns.<br>• Software: purpose and types |

| Month | Concept | Sub-Concept |
|---|---|---|
| October | Database concepts<br>And<br>SQL Commands | • Introduction to database concepts and its need<br>• Database Management System<br>• Relational data model<br>➢ Concept of domain<br>➢ Tuple<br>➢ Relation<br>➢ Candidate Key<br>➢ Primary Key<br>➢ Alternate Key<br>• Advantages of using SQL<br>• Data Definition Language<br>• Data Query Language<br>• Data Manipulation Language<br>• Introduction to MySQL<br>• Data Types<br>• Data Definition: CREATE DATABASE, CREATE TABLE, DROP, ALTER |
| November | SQL Commands | • Data Query: SELECT, FROM, WHERE with relational operators, BETWEEN, logical operators, IS NULL, IS NOT NULL<br>• Data Manipulation: INSERT, DELETE,UPDATE |
| December | Emerging Trends | • Artificial Intelligence<br>• Machine Learning<br>• Natural Language Processing<br>• Immersive experience(AR, VR)<br>• Robotics<br>• Big data & its characteristics<br>• Internet of Things(IoT)<br>• Sensors<br>• Smart cities<br>• Cloud Computing<br>• Cloud Services (SaaS, IaaS, PaaS)<br>• Grid Computing<br>• Block Chain Technology |
| January | Revision | |
| February | Revision | |

# HINDUSTANI MUSIC
# (Vocal)

| *Month* | | *Sub-Concept* |
|---|---|---|
| *June* | *Theory* | • *Naad, Shruti, Swar, Saptak, Thaat, Laya, Tala description of Raga, Life Sketch Miya Taansen.* |
| | *Practicals* | • *Raag, Bihaag with aalap and Taan and 1 Vilabit Khyaal.* |
| *July* | *Theory* | • *History of Dhrupad, Khyaal and Tarana, Jaati, Raag, Swarmalika, Lakshangeet, Margi and Deshi Sangeet.* |
| | *Practicals* | • *Revision of Raag Bihaag, Raag Bhimpalasi with aalap and Taan.* |
| *August* | *Theory* | • *Life sketch of Pt. V. N. Bhatkhande, Taal Notation (Thah, Dugun,Chaugun),Writing in notation of composition of Raga.* |
| | *Practicals* | • *Raag Bhairavi with aalap and Taan. (Dadra Tal, Kehrawa, Teentall, Sool Tall, Ek Tal, Chau Tal.* |
| *September* | *Theory* | • *Nibaddha and Anibaddha Gaan, Brief Study of gharana,Laya, Taal.* |
| | *Practicals* | • *Raag, Bhairavi Revision with aalap and Taan.* |
| *October* | *Theory* | • *Knowledge and structure of Taanpura life sketch Pt. V. D. Paluskar, Recognition of Ragas from phrases of swaras.* |
| | *Practicals* | • *One folk song, One Dhrupad, One Devotional Song.* |
| *November* | *Theory* | • *Brief Study Brihaddeshi of Natyashastra, Writing in Notation of composition of Raga.* |
| | *Practicals* | • *Revision of Full Course, National Anthem Practice* |
| *December* | *Practicals* | • *Revision of Full Course, National Anthem Practice, National Song* |
| *January* | *Practicals* | • *Revision of Full Course, National Anthem Practice* |

# KATHAK (DANCE)

| Month | | Sub-Concept |
|---|---|---|
| June | Theory | • A brief history of Indian Dance.<br>• Ability to write notation of Teental and Jhaptaal |
| | Practicals | • Practice of basic standing position and various patterns of Tatkar with Than laya.<br>• Dugun and Chougun.Thaat-1, Aamad-2, Vandana-1 |
| July | Theory | • Literary contents–Abhinay, Bhajans, Thumri, Dadra, Ghazals, Dhrupad,Kavitt.<br>• Acquaintance with the themes of Ramayana, Mahabharat in content of Kathak. |
| | Practicals | • Hastak-10, Chakkar in teentaal, Fast Aamad-2, Natwari Tukra |
| August | Theory | • Evolution of Kathak Dance in Pracheen Kal/Mandir Kal, Madhya Kal/Darbar Kal,<br>• Adhunik Kal covering British and post independent era till the present time |
| | Practicals | • Parhant of Teentaal and Jhaptaal, Tukra/Toda-4, Paran-4, Tihaayi-4 |
| September | Theory | • Gatbhav-Kaliya Daman, Govardhan lila, Panghatlila, Draupadi, Cheerharan, Makhan Chori , Marich Vadh, Basmasur Vadh, Madan dahan etc. |
| | Practicals | • Gatnikas-3, Gat Bhava-1 |
| October | Theory | • Rhythmic Musical composition like Tarana Tirvat, Chaturang etc. Rang Pravesh/Invocation, Composition (Bandish) from traditional technical dance part of kathak |
| | Practicals | • Ladi/laya Baant, Parhant of tukda/toda with hast kriya. |
| November | Theory | • Distinctive aspects of kathak using of Ghunghrus, Chakkars, Upaj, Costume etc. Acquaintance with the themes of Bhagvata Puran and Gita Govind |
| | Practicals | • Revision of full course |
| December | Theory | • Definition and short explanation: Nritta, Nritya, Natya, Tandava, Lashya, Ang, Upanga, Pratyanga. |
| | Practicals | • Revision of full course |
| January | Revision | |
| February | Revision | |

# PHYSICAL EDUCATION

***Rationales:***

*The following category students are permitted to opt for the Physical education in class XII*

1. *Those granted permission to join the course should be medically fit to follow the physical Education curriculum, theory and practical prescribed by the board.*
2. *Those who have represented the school, inter school sports and games competition in any game.*
3. *The student must undergo the prescribed physical education exam and secure a minimum 33 % marks in Theory and practical separately in class XI.*
4. *The unit of a class in physical education and health education should not exceed 40 students.*
5. *Instructional hours and direction of the period should be strictly as per due norms of the board.*
6. *The students must optional a sports as a specialization which is prescribed by due board.*
7. *Students must be choose their sports specialization as regular sports activities.*

| ***Month*** | ***Concept*** | ***Sub-concept*** |
|---|---|---|
| *April* | *Unit-1 Changing Trends and Careers in Physical Education* | • *Concept, Aims & Objectives of Physical Education*<br>• *Development of Physical Education in India – Post Independence*<br>• *Changing Trends in Sports- playing surface, wearable gear and sports equipment, technological advancements*<br>• *Career options in Physical Education*<br>• *Khelo-India Program and Fit – India Program* |
| *June* | *Unit-5 Physical Fitness, Wellness and Lifestyle* | • *Meaning & importance of Wellness, Health, and Physical Fitness.*<br>• *Components/Dimensions of Wellness, Health, and Physical Fitness*<br>• *Traditional Sports &Regional Games for promoting wellness*<br>• *Leadership through Physical Activity and Sports*<br>• *Introduction to First Aid – PRICE* |
| | *Unit -2 Olympism Value Education* | • *Olympism – Concept and Olympics Values (Excellence, Friendship & Respect)*<br>• *Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind*<br>• *Ancient and Modern Olympics*<br>• *Olympics - Symbols, Motto, Flag, Oath, and Anthem*<br>• *Olympic Movement Structure - IOC, NOC, IFS, Other members* |

| *Month* | *Concept* | *Sub-concept* |
|---|---|---|
| *July* | *Unit-7 fundamentals of anatomy, physiology in sports* | • *Definition and importance of Anatomy and Physiology in Exercise and Sports.*<br>• *Functions of Skeletal System, Classificationof Bones, and Types of Joints.*<br>• *Properties and Functions of Muscles.*<br>• *Structure and Functions of Circulatory System and Heart.*<br>• *Structure and Functions of Respiratory System* |
| *July* | *Unit – 3 Yoga* | • *Meaning and importance of Yoga*<br>• *Introduction to Astanga Yoga*<br>• *Yogic Kriyas (Shat Karma)*<br>• *Pranayama and its types.*<br>• *Active Lifestyle and stress management through Yog* |
| *August* | *Unit-8 fundamentals of Kinesiology and biomechanics in sports* | • *Definition and Importance of Kinesiology and Biomechanics in Sports.*<br>• *Principles of Biomechanics*<br>• *Kinetics and Kinematics in Sports*<br>• *Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation*<br>• *Axis and Planes –Concept and its application in body movements* |
| | *Unit – 4 Physical Education and Sports for CWSN* | • *Concept of Disability and Disorder*<br>• *Types of Disability, its causes & nature (Intellectual disability, Physical disability).*<br>• *Disability Etiquette*<br>• *Aim and objectives of Adaptive Physical Education.*<br>• *Role of various professionals for children with special needs (Counselor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist, and Special Educator)* |
| *September* | *Unit-9 Psychology and Sports* | • *Definition & Importance of Psychology in Physical Education & Sports;*<br>• *Developmental Characteristics at Different Stages of Development;*<br>• *Adolescent Problems & their Management;*<br>• *Team Cohesion and Sports;*<br>• *Introduction to Psychological Attributes: Attention, Resilience, Mental Toughness* |

| *Month* | *Concept* | *Sub-concept* |
|---|---|---|
| *October* | *Unit -10 Training and Doping in Sports* | • *Concept and Principles of Sports Training*<br>• *Training Load: Over Load, Adaptation, and Recovery*<br>• *Warming-up & Limbering Down –Types, Method &Importance*<br>• *Concept of Skill, Technique, Tactics &Strategies*<br>• *Concept of Doping And its disadvantages* |
| | *Unit – 6 Test, Measurement and Evaluation* | • *Define Test, Measurements and Evaluation.*<br>• *Importance of Test, Measurements andE valuation in Sports.*<br>• *Calculation of BMI, Waist – Hip Ratio, Skin fold measurement (3-site)*<br>• *Somato Types (Endomorphy, Mesomorphy & Ectomorphy)*<br>• *Measurements of health-related fitness* |
| *November* | ***Revision*** | |
| *December* | ***Revision*** | |
| *February* | ***Revision*** | |

# PAINTING

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Practicals | • Still life drawing 1,2,3 points perspective |
| June | Pre-Historic Rock Painting and art of Indus Valley | • Introduction<br>• Study and appreciation of pre-historic paintings - Wizards Dance<br>• Location - Bhimbethaka,Harappa&Imohenjo-daroRopar,Lothal,Rangpur,Alamgipur,KaliBangan,Banawali and Dholavira<br>• Study and appreciation of sculptures and terracottas<br>• Dancing girl,MaleTorso,Mother Goddess |
| | Practicals | • Points, Line, Shape, Form, Color, Texture, value and Space Elements of Arts,still life in pencil shading. |
| July | Pre-Historic Rock Painting and art of Indus Valley | • Study and appreciation of seal-bull, painted earthen wares. |
| | Buddhist,Jain and Hindu | • General Introduction to art during Mauryan,Shunga,kushana,Gupta period |
| | Art | • Study and appreciation of Sculptures |
| | Practicals | • Nature drawings, Pencil Shading, Perspective, Pencil Color, Landscape, Sketching, StillLife (3 object + drapery), in pencil shading, non symmetrical geometric design. |
| August | Buddhist,Jain and Hindu Art | • Study and appreciation of Sculpture: lion capital from sarnath, chauri bearer from Didarganj,seated Buddha from katramound,jainThirthankara.<br>• Introduction to Ajanta Location(all caves study)<br>• Chaitya and Vihara<br>• Painting and sculpture<br>• Subject matter and technique |
| | Practicals | • Still Life, Ratio Proportion, Water Color, Overlapping design (nature) |
| September | Temple Sculpture,Bronzes and Artistic Aspects of Indo-Islamic Architecture | • Artistic aspects of Indian Temple Sculptures<br>• Introduction to Temple Sculpture<br>• Study and appreciation of Temple Sculpture-decent of Ganga, Trimurti ,laxmi narayan ,cymbal player, sun temple, mother and child, |
| | Practicals | • Principles of composition, Canvas Painting Poster Color, Pen Work ,Composition,Still Life, Overlapping design and Collage Painting |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *October* | *Temple Sculpture,Bronzes and Artistic Aspects of Indo-Islamic Architecture* | • *Bronze: Natraj (Chola Period)*<br>• *Artistic aspects of the Indo-Islamic Architectures*<br>• *Study and appreciation of the indo Islamic architecture*<br>• *Qutubminar ,Golgumbad of Bijapur* |
| | *Practicals* | • *Still Life, Canvas Painting, Design* |
| *November* | *Revision* | |
| *December* | *Revision* | |
| *January* | *Revision* | |
| *February* | *Revision* | |

# PSYCHOLOGY

***Rationale***

*Psychology is introduced as an elective subject at the higher secondary stage of school education. As a discipline, psychology specializes in the study of experiences, behaviors and mental processes of human beings within a socio-cultural historical context.This course purports to introduce the learners to the basic ideas, principles, and methods in Psychology.The emphasis is to create interest and exposure needed by learners to develop their own knowledge base and understanding.*

*The course deals with psychological knowledge and practices which are contextually rooted. It emphasizes the complexity of behavioral processes and discourages simplistic cause-effect thinking. This is pursued by encouraging critical reasoning, allowing students to appreciate the role of cultural factors in behavior and illustrating how biology and experiences shape behavior.*

*Following the CBSE curriculum, it will be ensured, that the teaching - learning processes should involve students in evolving their own understanding, therefore, teaching of Psychology will be based on the use of case studies, narratives, experiential exercises, analysis of common everyday experiences, etc.*

***Objectives:***

- *To develop appreciation about human mind and behavior in the context of learners' immediate society and environment.*
- *To develop in learners an appreciation of the nature of psychological knowledge and its application to various aspects of life.*
- *To enable learners to become perceptive, socially aware and self-reflective.*
- *To facilitate students' quest for personal growth and effectiveness, and to enable them to become responsive and responsible citizens.*

| MONTH | UNIT | TOPICS |
|---|---|---|
| **April** | UNIT - I<br>What is Psychology? | 1. Introduction<br>2. What is Psychology?<br>• Psychology as a Discipline<br>• Psychology as a Natural Science<br>• Psychology as a Social Science<br>3. Understanding Mind and Behaviour<br>4. Popular Notions about the Discipline of Psychology<br>5. Evolution of Psychology<br>6. Development of Psychology in India<br>7. Branches of Psychology<br>8. Psychology and Other Disciplines<br>9. Psychology in Everyday Life |
| **June** | UNIT - II<br>Methods of Enquiry in Psychology | 1. Introduction<br>2. Goals of Psychological Enquiry<br>• Steps in Conducting Scientific Research<br>• Alternative Paradigms of Research<br>3. Nature of Psychological Data<br>4. Some Important Methods in Psychology<br>• Observational Method<br>• Experimental Method<br>• Correlational Research<br>• Survey Research<br>• Psychological Testing<br>• Case Study<br>5. Analysis of Data<br>• Quantitative Method<br>• Qualitative Method<br>6. Limitations of Psychological Enquiry<br>7. Ethical Issues |
| **July** | UNIT - IV<br>Human Development | 1. Introduction<br>2. Meaning of Development<br>• Life-Span Perspective on Development<br>3. Factors Influencing Development<br>4. Context of Development<br>5. Overview of Developmental Stages<br>• Prenatal Stage<br>• Infancy<br>• Childhood<br>• Challenges of Adolescence<br>• Adulthood and Old Age |

| MONTH | UNIT | TOPICS |
|---|---|---|
| **July** | UNIT - V<br>Sensory, Attentional and Perceptual Processes | 1. Introduction<br>2. Knowing the world<br>3. Nature and varieties of Stimulus<br>4. The Perceiver<br>5. Principles of Perceptual Organisation<br>6. Perception of Space, Depth and Distance<br>• Monocular Cues and Binocular Cues<br>7.Perceptual Constancies<br>8.Illusions<br>9.Socio-Cultural Influences on Perception |
| **August** | UNIT - IX<br>Motivation and Emotion | 1. Introduction<br>2. Nature of Motivation<br>3. Types of Motives : Psychosocial Motives<br>4. Nature of Emotions<br>5. Physiological Baes of Emtions<br>6. Congnitive Bases of Emotions<br>7. Managing Negative Emotions<br>8. Enhancing Positive Emotions |
| **September** | UNIT - VIII<br>Thinking | 1. Introduction<br>2. Nature of Thinking<br>• Building Blocks of Thought<br>3. The Processes of Thinking<br>4. Problem Solving<br>5. Reasoning<br>6. Decision-making<br>7. Nature and Process of Creative Thinking<br>• Nature of Creative Thinking<br>• Process of Creative Thinking<br>8. Developing Creative Thinking<br>9. Thought and Language<br>9. Development of Language and Language Use |

| *MONTH* | *UNIT* | *TOPICS* |
|---|---|---|
| ***October*** | *UNIT - VI*<br>*Learning* | *1. Introduction*<br>*2. Nature of Learning*<br>*3. Paradigms of Learning*<br>*4. Classical Conditioning*<br>• *Determinants of Classical Conditioning*<br>*5. Operant/Instrumental Conditioning*<br>• *Determinants of Operant Conditioning*<br>• *Key Learning Processes*<br>*6. Observational Learning*<br>*7. Cognitive Learning*<br>*8. Verbal Learning*<br>*9. Skill Learning*<br>*10.Factors Facilitating Learning*<br>*11.Learning Disabilities* |
| ***November*** | *UNIT - VII*<br>*Human Memory* | *1. Introduction*<br>*2. Nature of memory*<br>*3. Information Processing Approach : The Stage Model*<br>*4. Memory Systems: Sensory, Short-term and Long-term Memories*<br>*5. Levels of Processing*<br>*6. Types of Long-term Memory*<br>• *Declarative and Procedural; Episodic and Semantic*<br>*7. Nature and Causes of Forgetting*<br>• *Forgetting due to Trace Decay, Interference andRetrieval Failure*<br>*8. Enhancing Memory*<br>• *Mnemonics using Images and Organisation* |
| ***December*** | ***Revision*** | |
| ***January*** | ***Revision*** | |
| ***February*** | ***Revision*** | |

# LEGAL STUDIES

***Rationale***

*The Latin maxim ignorantia juris neminem excusat, in plain, which reads as 'ignorance of law is not an excuse'. This is one of the age-old principles followed under Roman Law and even in our own Common Law. If every person of discretion is to know what law is, an effort to teach law outside the remit of a professional law sfchool may have significant social benefits.*

*Law is a subject that has been traditionally taught in Universities for almost eight centuries. Learning law outside the settings of a professional law school has a number of perceived benefits. Some familiarity with the law enhances one's understanding of public affairs and an awareness of one's entitlements and duties as a citizen. It may also be helpful in eliminating some of the mistaken notions about law and some of the inveterate prejudices about law, lawyers, and the legal system as such. Another advantage is that an understanding of the law can undoubtedly encourage talented students to pursue a career in law – an objective that is laudable in its own right.*

*The pitfalls of learning law outside the settings of a professional school are rooted in two key assumptions:*

*1. law is too vast and complicated to be taught in a non-professional setting;*

*2. the lack of professional trainers and experienced teachers could lead to incorrect appreciation and understanding of law. If an understanding of law is misinformed or illformed as some academicians think, it may require greater efforts to unlearn whatever was learnt earlier. Both these criticisms have attracted detailed scrutiny, but at least a few countries have introduced law at the High School level.*

*The experience of countries that have introduced law has been by and large optimistic. The Central Board of Secondary Education is introducing Legal Studies at the Class XI level. The proposal is to introduce one module in Class XI and a second module in Class XII.*

***Objectives** :*

- *To provide a background of the evolution of the Indian legal system in a short and concise form.*
- *To focus on the applicability of justice, equity and good conscience and more importantly the development of Common Law system in India.*
- *To provide exposure on various systems of law such as Common Law, Civil Law etc.*
- *To develop an understanding of the essential features of the Indian Constitution, including the role and importance of Fundamental Rights, Separation of Powers, Structure and operation of Courts, concept of precedent in judicial functioning, the of legislation, basic principles of statutory interpretation, etc.*
- *To deal with principles of practical utility such as the concept of Rule of Law, principles of justice, differences between criminal and civil cases, the concept of crime and the fundamental theories of punishment, rights available to the accused at various stages of the criminal investigative process, or the key components of Human Rights, etc.*
- *To understand the fundamental concepts and subject matter of property, contract and tort law.*
- *To understand the rudimentary aspects of contract law such as formation of contract, terms and conditions of contracts, discharge of contract, etc.*
- *To enable students to form an understanding of rights and duties and various categories of liability principles which form the bedrock for an understanding of Law.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *UNIT 1- Introduction to Political Institutions*<br>*1) Concept of State* | • *What is a State?*<br>• *The concept of State and Article 12 of the Indian Constitution*<br>• *What is a Government?*<br>• *Emergence of the State from Society*<br>• *Definition of State*<br>• *Theories on the Origin of State*<br>• *Elemetns of State*<br>• *Role of State* |
| | *2) Forms and Organs of Government* | • *Introduction to the Organs of Government*<br>• *Forms of Government*<br>o *Monarchy*<br>o *Aristocracy*<br>o *Dictatorship*<br>o *Democracy*<br>• *Main organs of Government and its functions*<br>o *General Functions of Legislature as Organ of Government*<br>o *General Functions of Executive as Organ of Government*<br>o *General Functions of Judiciary as Organ of the Government* |
| | *3) Separation of Powers* | • *Concept of Separation of Powers*<br>• *Historical Background and Evolution of Montesquieu's Doctrine of Separation of Powers*<br>o *Montesquieu's Doctrine of Separation of Powers*<br>o *Basic Features of the Doctrine Separation of Powers as Enunciated by Montesquieu*<br>o *Checks and Balances of Power*<br>o *Impact of the Doctrine*<br>• *Evaluation of The Doctrine of Separation of Powers*<br>o *Key Benefits and Advantages of The Doctrine of Separation of Powers*<br>o *Defects of the Doctrine*<br>• *Separation of Powers In Practice*<br>o *Separation of Powers in Britain*<br>o *Separation of Powers in the United States of America*<br>o *Separation of Powers in India* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *June* | *UNIT 2-*<br>*Basic Features of the Constitution of India*<br>*1) Salient Features of the Constitution of India* | • *Meaning of the term Constitution*<br>• *Definition of the term Constitution*<br>• *Historical Perspective of the Constitution of India*<br>• *Salient Features of The Constitution of India*<br>  ○ *A Modern Constitution*<br>  ○ *Lengthiest written Constitution*<br>  ○ *Preamble to the Constitution*<br>• *Fundamental Rights; Directive Principles of State Policy; Fundamental Duties*<br>• *Constitutional Provision for Amendment of the Constitution of India*<br>• *Adult Suffrage*<br>• *Single Citizenship*<br>• *Independent Judiciary*<br>• *Emergency Provisions* |
| *July* | *Salient Features of the Constitution of India (Contd…)* | • *Federal in form Unitary in character*<br>• *Division of Power- Centre- State Relations*<br>• *Schedules to the Constitution* |
| | *Administrative Law* | • *Background*<br>• *Administrative Law and Constitutional Law; Key Differences*<br>• *Reasons for Growth, Development and Study of Administrative Law*<br>• *Types of Adminsitrative Actions*<br>• *Fundamental Principle of Administrative Law: Rule of Law*<br>• *Droit System* |
| | *Project work* | • *Case Study* |
| *August* | *UNIT 3- Jurisprudence, Nature and Sources of Laws*<br>*1) Jurisprudence, Nature and Meaning of Law* | • *Introduction*<br>• *Historical Prespective*<br>• *Schools of Law* |
| | *2) Classification of Laws* | *Function and Purpose of Law*<br>• *Classification of Law based on Subject matter*<br>• *Classification of Law based on Scope of Law*<br>• *Classification of Law based on Jurisdiction* |
| | *3) Sources of Law* | • *Where does law come from?*<br>• *Custom as a source of Law*<br>• *Importance of Custom as a source of Law in India*<br>• *Judicial Precedent as a Source of Law*<br>• *Legislation as a Source of Law* |

| Month | Concept | Sub-Concept |
|---|---|---|
| **September** | **UNIT 3-** *Jurisprudence, Nature and Sources of Laws (contid….)*<br>*4) Law Reform* | • *Need for Law Reform*<br>• *Law Reforms in India*<br>• *Recent Law Reforms in Independent India* |
| | *5) Cyber Laws, Safety and Security in India* | • *Introduction*<br>• *Why do we need Cyber Laws*<br>• *What is Cyber Law?*<br>• *What is Cyber safety and Security?*<br>• *What is cyber Crime?*<br>• *Categories of Cyber Crime*<br>• *Cyber law in India*<br>• *Scope or extent of the Information Technology Act, 2000 (IT Act)*<br>• *What was Section 66 A IT Act, 2000?* |
| | **Project Work** | • *Case Study* |
| **October** | *UNIT 4- Judiciary : Constitutional, Civil and Criminal Courts and Processes* | • *Introduction: Establishment of the Supreme Court and High Courts*<br>• *Constitution, Roles And Impartiality*<br>• *Independence and Impartiality of the Supreme Court*<br>• *Structure and Hierarchy of the Courts in India*<br>• *The civil process and functioning of Civil courts*<br>• *The Civil Court Structure*<br>• *Common legal terminology*<br>• *Types of jurisdiction*<br>• *Res subjudice and Res judicata in code of civil procedure (1908)*<br>• *Structure And Functioning Of Criminal Courts In India*<br>  ○ *Types of offences*<br>  ○ *Criminal investigation and First Information Report (FIR)*<br>  ○ *The criminal process- Investigation and prosecution*<br>  ○ *Doctrine of autrefois acquit and autrefois convict*<br>  ○ *Function and Role of Police*<br>• *Other courts in India*<br>  ○ *Family Courts*<br>  ○ *Administrative Tribunals* |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *November* | ***UNIT 5 -*** *Family Justice System*<br>***1)*** *Institutional Framework; Marriage and Divorce* | • *Nature of Family law in India*<br>• *Human rights and gender perspective*<br>• *Institutional framework- family Courts*<br>• *Role of women in the creation of family courts*<br>• *Role of lawyers and counselors in Family courts*<br>• *Role of counselors and gender issues*<br>• *Marriage and Divorce* |
| | ***2) Child Rights*** | • *Child Rights*<br>• *Right to Education*<br>• *Right to Health*<br>• *Right to Shelter*<br>• *Child Labour*<br>• *Sexual Abuse*<br>• *Juvenile Justice* |
| | ***3) Adoption*** | • *Adoption*<br>• *Minor custody and Guardianship* |
| | ***Project Work*** | • *Case Study* |
| *December* | ***UNIT 5 -*** *Family Justice System (contd..)*<br>***4) Property, Succession and Inheritance*** | • *Concept of Property: Joint Family Property and Separate Property*<br>• *Inheritance and Succession*<br>• *Intestate Succession*<br>• *Rules relating to Intestate Succession*<br>• *Testamentary Succession* |
| | ***UNIT 5 -*** *Family Justice System (contd..)*<br>***5) Prevention of Violence against Women*** | • *What is Domestic abuse / violence?*<br>• *International legal framework*<br>• *Laws in India on prevention of violence against women* |
| | ***Project work*** | *Case Study* |
| *January* | ***Revision*** | |
| *February* | ***Revision*** | |

# TAXATION

***SALIENT FEATURES:***

- *Focus on conceptual knowledge on current tax laws*
- *Learning through practical exposure*
- *Building confidence to start work life by gaining required knowledge in Taxation domain*
- *Providing scope to pursue Taxation as specialization in higher studies after senior secondary Tapping ample placement opportunities in Government and private sector*

***OBJECTIVES OF THE COURSE:***

*Following are the main objectives of this course:*

- *To acquaint the learners with basic principles underlying the provisions of tax laws*
- *To develop a broad understanding of the tax laws and accepted tax practices*
- *To introduce practical aspects of income tax filing of return*
- *To introduce aspects of tax planning as an important managerial decision making process*
- *To expose learners to real life situations involving taxation and equip them for taking tax- sensitive decisions*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | **Unit–1**<br>Introduction to Income Tax and important definitions<br>**Unit–2**<br>Exempted Incomes and Residential status<br>**Employability Skills: Unit – V**<br>Green Skills | • Income Tax –meaning , basis of charge of Income Tax<br>• Important definitions<br>• Agricultural income<br>• Sectors , policies , stake holders in Green Economy |
| June | **Unit–2**<br>Exempted Incomes and Residential status (Cont…) | • Residential status |
| | **Unit–3**<br>Heads of Income (Other Sources) | • Introduction to other sources of income<br>• Calculation of income from other sources |
| | **Employability Skills: Unit – IV**<br>Entrepreneurship Skills | • Introduction, values, attitude of an Entrepreneur<br>• Understanding Market<br>• Business Planning |
| July | **Unit–3**<br>Heads of Income ( Capital Gains)<br><br>**Employability Skills: Unit – III**<br>Information and Communication Skills | • Meaning of Capital Gains.<br>• Types of capital gains.<br><br>• Introduction, Basic interface Libre Office. |
| August | **Unit–3**<br>Heads of Income ( Business and Profession )<br>**Employability Skills: Unit – II**<br>Self Management Skills | • Concept of Business and Profession.<br>• Computation of net income in Business and profession<br>• Strength and weakness, Grooming, Personal hygiene. |
| September | **Unit–3**<br>Heads of Income ( House Property )<br>**Employability Skills: Unit – I**<br>Communication Skills | • Meaning, computation of net annual value.<br>• Deductions and other provisions in income from House Property.<br>• Introduction, verbal and non verbal communication .<br>• Writing skills , Greetings, describing habits and routines. |
| October | **Unit–3**<br>Heads of Income ( Salary ) | • Meaning of Salary<br>• Allowances<br>• Perquisites<br>• Computation of income from Salary. |

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *November* | *Unit–3*<br>*Heads of Income ( Salary )*<br>*Project Work* | • *Computation of income from Salary.*<br>• *Guidelines and Discussion.* |
| *December* | *Revision* | |
| *January* | *Revision* | |
| *February* | *Revision* | |

# HINDUSTANI PERCUSSION MUSIC

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | • *Introduction to Tala and Laya*<br>• *Types of Laya: Vilambit, Madhya, Drut* | • *Basic Bols and Patterns*<br>• *Simple compositions in Teentala* |
| *June* | • *Study of Talas: Teentala, Jhaptala* | • *Performance of Kayada and Tukra in Teentala* |
| *July* | • *Concept of Theka and Layakari*<br>• *Definitions: Sam, Tali, Khali* | • *Rela and Tukra in Jhaptala*<br>• *Dugun and Chaugun practice* |
| *August* | • *Biographies: Pt. Kanthe Maharaj, Pt. Samta Prasad* | • *Recitation of Thekas*<br>• *Accompaniment techniques* |
| *September* | • *Notation writing of compositions in Teentala and Jhaptala* | • *Practical demonstration and solo preparation* |
| *October* | • *Revision of all theory topics* | • *Internal assessment preparation and final performance practice* |
| *November* | • *Full syllabus revision*<br>• *Practice theory papers* | • *Full practical revision*<br>• *Mock practical tests and solo performances* |
| *December* | *Revision* | |
| *January* | *Revision* | |
| *February* | *Revision* | |
| *March* | *Revision* | |

# MARKETING

***Rationale:***

*The course in Marketing is introduced at the +2 stage of Senior Secondary Education to provide students with an understanding of how goods and services are promoted and delivered to customers. It helps students learn how businesses identify customer needs and satisfy them through product planning, pricing, promotion and distribution. The course prepares students to understand market trends, customer behaviour and the importance of marketing in business success. It also explains how marketing is influenced by social, economic and technological factors and highlights its role in business growth and customer satisfaction. Therefore, to acquire basic knowledge of selling, advertising, branding and customer relations, the study of Marketing is useful as it also creates awareness about career opportunities in sales, advertising, retail and market research and bridges the gap between school learning and the business world.*

***Objectives***

- *To understand classical marketing perspectives and compare them with modern relational and service-based marketing views.*
- *To understand the impact of environmental factors on marketing and help students develop feasible marketing plans.*
- *To understand the utility of* ***STP in marketing*** *(Segmentation, Targeting, and Positioning).*
- *To gain basic knowledge of marketing mix, consumer behaviour, and the role of marketing in society.*
- *To familiarize students with different dimensions of retail management and career opportunities in marketing fields.*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | Unit 1:Introduction to Marketing | • Concept of Marketing<br>• Meaning and Definition of Marketing<br>• Marketing Philosophies<br>• Selling vs Marketing |
| June | Unit–1:Introduction to Marketing | • Objectives of Marketing<br>• Scope of Marketing<br>• Importance of Marketing |
| July | Unit 2: Marketing Environment<br>Employability Skills (Communication Skills ) | • Meaning of Marketing Environment<br>• Importance of Marketing Environment<br>• Internal Environment Determinants<br>• External Environment Determinants |
| August | Unit 2: Marketing Environment | • Meaning of ETOP (Environmental Threat and Opportunity Profile)<br>• Environmental Scanning<br>• Micro Environment and its Impact on Business<br>• Macro Environment and its Impact on Business |
| September | Unit 3: Segmentation, Targeting and Positioning<br><br>Employability Skills (Self-Management Skills) | • Meaning of Market Segmentation<br>• Basis of Segmentation<br>• Importance of Segmentation. |
| October | Unit 3: Segmentation, Targeting and Positioning<br>Employability Skills (ICT Skills) | • Understanding Targeting<br>• Types of Targeting<br>• Positioning: Meaning<br>• Basis of Positioning |
| November | Unit 4: Fundamentals of Marketing Mix | • Introduction to Marketing Mix<br>• Characteristics of Marketing Mix<br>• Different Marketing Mix for Product and Service<br>• Marketing Mix for Consumer Goods and Services<br>• 4 P's to 4 C's Concept |
| December | Unit 5: Consumer Behaviour<br><br>Employability Skills (Entrepreneurial Skills )<br><br>Employability Skills (Green Skills) | • Meaning of Consumer Behaviour<br>• Importance of Consumer Behaviour<br>• Factors Influencing Consumer Behaviour<br>• Stages of Consumer Behaviour |
| January | Revision | |
| February | Revision | |

# DATA SCIENCE

***Objective:***

*The course intends to develop skills related to* ***R Studio and data visualization*** *which helps students analyze complex datasets and interpret trends effectively*

***Learning Objectives:***

- *The course intends to develop skills related to R Studio and data visualization which helps students analyze complex datasets gathered through surveys or web scraping*
- *. Knowledge of data ethics, governance, and the distinction between correlation and causation is helping students manage data ecosystems securely while performing accurate trial assessments*
- *. This foundation enables forecasting and prepares students for future AI-based applications*
- *. The curriculum is designed to develop appropriate technical knowledge as well as the professional skill of the students*

| Month | Concept | Sub-Concept |
|---|---|---|
| April | ETHICS IN DATA SCIENCE | • How Data Ecosystem is evolving<br>• Necessity to understand ethics for Data Scientists: |
| June | ETHICS IN DATA SCIENCE<br>ASSESSING DATA | • Data governance framework – What & why<br>• Difference between story and fact.<br>• Trial assessment in detail.<br>• Communication Skills (Part A) |
| July | FORECASTING ON DATA | • What is Forecasting?<br>• What is an observational study?<br>• Self-Management Skills-III(Part A) |
| August | RANDOMIZATION | • What is a survey?<br>• What is sampling bias?<br>• What is a confidence interval?<br>• ICT Skills-III(Part A) |
| September | RANDOMIZATION | • Collection of data via sensors<br>• Collection of data from XML |
| October | INTRODUCTION TO R STUDIO | • How to access R Studio?<br>• How to perform basic programming in R Studio? |
| November | INTRODUCTION TO R STUDIO | • Coding for data science using R Studio<br>• Code example with R Studio<br>• Green Skills-III(Part A) |
| December | Entrepreneurial Skills | • Entrepreneurial Skills-III(Part A) |
| January | Revision | |
| February | Revision | |

# ARTIFICIAL INTELLEGENCE

***Objective:***

*The course intends to develop skills related to Python programming and Machine Learning which helps students build intelligent models to solve real-world problems and analyze complex patterns.*

***Learning Objectives:***

- *The course intends to develop skills related to Python programming and data literacy which helps students build, train, and evaluate machine learning models using libraries like Pandas, Matplotlib, and Scikit-learn.*
- *Knowledge of AI ethics, bias awareness, and the pillars of accountability and transparency is helping students develop and deploy technology responsibly while ensuring data privacy and fairness.*
- *This foundation enables problem decomposition through Design Thinking and prepares students to execute comprehensive Capstone Projects aligned with Sustainable Development Goals.*
- *The curriculum is designed to develop appropriate technical knowledge as well as the professional skill of the students.*

| *Month* | *Concept* | *Sub-Concept* |
|---|---|---|
| *April* | *Unit 1: Introduction- AI for Everyone* | • *Definition of Artificial Intelligence*<br>• *Evolution of AI*<br>• *Types of Data (Structured, Unstructured, Semi-structured)*<br>• *Domains of AI (Statistical Data, NLP, Computer Vision)*<br>• *AI Terminologies (Machine Learning, Deep Learning, Neural Networks)* |
| *June* | *Unit 2: Unlocking your Future in AI* | • *Types of Machine Learning (Supervised, Unsupervised, Reinforcement)*<br>• *Benefits and Limitations of AI*<br>• *Global Demand for AI Professionals*<br>• *Common Job Roles in AI*<br>• *Essential Skills and Tools*<br>• *Opportunities Across Industries (Automobile, Agriculture, Retail, Healthcare, etc.)*<br>• *Communication Skills (Part A)* |
| *July* | *Unit 3: Python Programming*<br>*Unit 4: Introduction to Capstone Project* | • *Basics of Python Programming Language*<br>• *Character Sets, Tokens, Modes, Operators, and Data Types*<br>• *Control Statements (Selection and Looping)*<br>• *CSV Files (Reading and Writing)*<br>• *Python Libraries – NumPy, Pandas, and Scikit-learn*<br>• *Meaning and Goals of the Capstone Project*<br>• *Design Thinking Methodology*<br>• *Problem Identification and Decomposition*<br>• *Empathy Mapping*<br>• *The 5W1H Method (Who, What, Where, When, Why, How)*<br>• *Sustainable Development Goals (SDGs)* |
| *August* | *Unit 5: Data Literacy -Data Collection to Data Analysis* | • *What is Data Literacy?*<br>• *Data Collection (Primary and Secondary Sources)*<br>• *Exploring Data (Levels of Measurement: Nominal, Ordinal, Interval, Ratio)*<br>• *Statistical Analysis of Data (Central Tendency and Dispersion)*<br>• *Python Programs for Statistical Analysis and Data Visualization*<br>• *Introduction to Matrices*<br>• *Data Preprocessing*<br>• *Data in Modelling and Evaluation*<br>• *ICT Skills(Part A)* |
| *September* | *Unit 6: Machine Learning Algorithms* | • *Machine Learning in a Nutshell*<br>• *Types of Machine Learning*<br>• *Supervised Learning - Regression (Correlation and Linear* |

| | | |
|---|---|---|
| | | *Regression)*<br>• *Supervised Learning - Classification (Binary, Multi-class, KNN Algorithm)*<br>• *Unsupervised Learning - Clustering (K-Means Algorithm)* |
| ***October*** | ***Unit 7: Leveraging Linguistics and Computer Science*** | • *Human Language Complexity (Ambiguity, Sarcasm, Unstructured Data)*<br>• *Natural Language Processing (NLP) Basics*<br>• *Sentence Segmentation and Tokenization*<br>• *Differences Between NLP, NLU, and NLG*<br>• *Phases of NLP (Lexical, Syntactical, Semantic, Discourse, Pragmatic)*<br>• *Emotion Detection and Sentiment Analysis*<br>• *Chatbot Design and Structure (Intents, Entities, Dialog Flow)*<br>• *NLP Applications (Email Filtering, Document Analysis, Summarization)* |
| ***November*** | ***Unit 8: AI Ethics and Values*** | • *Fundamentals of Ethics*<br>• *Pillars of AI Ethics (Accountability, Transparency, Fairness, Privacy, Safety)*<br>• *Bias, Bias Awareness, and Sources of Bias*<br>• *Mitigating Bias in AI Systems*<br>• *AI Policies and Responsible Use*<br>• *Ethical Decision-Making*<br>• *Green Skills(Part A)* |
| ***December*** | ***Entrepreneurial Skills*** | • *Entrepreneurial Skills (Part A)*<br>• *Self-Management Skills(Part A)* |
| ***January*** | *Revision* | |
| ***February*** | *Revision* | |