S.S.T College of Arts & Commerce

DEPARTMENT OF SCIENCE

Learning Outcomes

Class: - F.Y.J.C - XI SCIENCE

Course Name: - Physics

1. Understand basic physical concepts and quantities, such as scalars, vectors, mass, time, and displacement.
2. Develop problem-solving skills using mathematical tools like vectors, trigonometry, and calculus in physical situations.
3. Apply Newton's laws of motion to solve real-life and theoretical problems involving force and motion.
4. Understand and analyze motion in one, two, and three dimensions, including projectile motion and circular motion.
5. Conceptual Understanding of Physical Laws Students will be able to explain and apply fundamental laws of physics—such as Newton's laws of motion, laws of thermodynamics, and principles of electromagnetism—to real-world phenomena and problem-solving.

Course Name: - Biology

1. Understand Fundamental Biological Concepts.
2. Explore Diversity of Life
3. Explain Structural Organization
4. Analyze the Functions of Biomolecules
5. Understand Cell Structure and Functions
6. Understand Plant Physiology.
7. Comprehend Human Physiology
8. Develop Scientific Skills
9. Apply Biological Knowledge in Daily Life.
10. Foster Curiosity and Scientific Temper

Course Name: - Chemisrty

1. **Understand Basic Concepts of Chemistry**
2. **Periodic Table and Periodicity**
3. **Thermodynamics**
   - **Define system, surroundings, types of systems, and processes.**
4. **Redox Reactions**
   - **Define oxidation and reduction in terms of electron transfer.**
5. **Some Basic Organic Chemistry**
   - **Understand the classification and nomenclature of organic compounds.**
6. **Practical Skills Development**
   - **By the end of the year, students will be able to:**
   - **Handle basic laboratory e.**

Course Name: - Mathematics

1. **Sets and Functions**
   - **Understand the concept of sets, types of sets, and set operations.**
2. **Relations and Functions**
   - **Understand relations and their properties.**
3. **Trigonometry**
   - **Understand trigonometric ratios for acute angles.**
4. **Quadratic Equations**
   - **Solve quadratic equations by factorization, completing the square, and using the quadratic formula.**
5. **Straight Lines**
   - **Understand the equation of a straight line in various forms.**

Course Name: - Geography

1. Understanding the dynamic nature of the Earth
2. Analyzing the formation of landforms
3. Understanding weathering and erosion processes
4. Studying global climate and climatic regions
5. Evaluating the causes and effects of climate change
6. Understanding the importance of oceans
7. Exploring biodiversity and biomes
8. Learning disaster management and response
9. Developing map reading and interpretation skills
10. Applying GPS in geographical studies

Course Name: - English

1. **Improve Listening and Speaking Skills** – Understand spoken English and express ideas clearly in conversations, discussions, and presentations.
2. **Develop Reading Skills** – Read and understand prose, poetry, and other texts with focus on theme, tone, and message.
3. **Enhance Writing Skills** – Write letters, reports, essays, e-mails, and summaries with proper structure and grammar.
4. **Learn Grammar and Vocabulary** – Use correct grammar and expand vocabulary for academic and daily use.
5. **Appreciate Literature** – Understand and enjoy poems and stories, and identify literary devices.
6. **Build Communication and Thinking Skills** – Develop confidence, creativity, and critical thinking for real-life situations and future careers.

Course Name: - Hindi

1. Read and interpret literary passages and poetry.
2. Write effectively in Hindi: essays, letters, summaries.
3. Use correct grammar and expression.
4. Understand cultural contexts through literature.
5. Speak fluently in diverse contexts.
6. Comprehend and translate unseen textual material.

Course Name: - Marathi

1. Develop reading skills in diverse Marathi literature.
2. Write descriptive, narrative, and formal compositions.
3. Apply correct grammar and vocabulary in writing and speech.
4. Interpret cultural and thematic elements in texts.
5. Engage in spoken Marathi with clarity.
6. Foster appreciation of Marathi literary heritage.

Course Name: - Information Technology

1. Master fundamental IT tools—word processors, spreadsheets, and presentation software.
2. Understand basic database concepts and data management.
3. Use IT applications for business documentation and reporting.
4. Explore digital technologies like HTML and web communication tools.
5. Learn Tally or similar financial software for business applications.
6. Improve typing, file handling, and user interface skills.
7. Recognize technology's impact on commerce and administrative processes.

Course Name: - Health & Physical Education (HPE)

1. Understand the significance of physical fitness and wellness.
2. Participate competently in sports and physical activities.
3. Learn essential health, hygiene, and first-aid practices.
4. Understand basic human anatomy and physiology.
5. Demonstrate discipline, teamwork, and leadership in sporting contexts.
6. Perform exercises like yoga with correct posture and technique.
7. Encourage lifelong fitness and health-conscious habits.

Course Name: - Environmental Studies (EVS)

1. Understand human-environment interactions and ecological balance.
2. Identify environmental issues such as pollution, deforestation, and waste.
3. Explore the principles of sustainable development.
4. Learn environmental legislation and protection efforts.
5. Engage in eco-friendly activities like tree planting and clean-ups.
6. Analyze environmental case studies and data.
7. Develop attitudes of conservation and sustainable living.

Course Name: - Computer Science (Paper I & Paper II)

1. Understand the basic structure and functioning of a computer system.
2. Develop logical thinking through flowcharts and algorithms.
3. Learn basic programming concepts using Python or C++.
4. Apply programming knowledge to solve simple real-life problems.
5. Understand number systems, data representation, and Boolean logic.
6. Gain awareness of ethical practices and safety in the digital world.

S.S.T College of Arts & Commerce
DEPARTMENT OF SCIENCE

Learning Outcomes

Class: - S.Y.J.C - XII SCIENCE

Course Name: - Physics

1. Rotational Motion and Mechanical Properties of Fluids
2. Distinguish between centrifugal and centripetal forces.
3. Visualize the concepts of moment of inertia of an object.
4. Relate moment of inertia of a body with its angular momentum.
5. Differentiate between translational and rotational motions of rolling objects.
6. Relate the pressure of a fluid to the depth below its surface.
7. Identify processes in daily life where surface tension plays a major role.

Course Name: - Chemistry

1. State common and IUPAC names of compounds and methods of preparation of halogen derivatives, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acid and amines.
2. Applied Chemistry
   - Classify carbohydrates, amino acids, nucleic acids.
   - Represent monosaccharides using the Fischer projection formula.
3. Physical Chemistry
   - Distinguish crystal structures illustrating unit cell and packing efficiency in cubic systems.
4. Inorganic Chemistry
   - Write electronic configuration of groups 16, 17, 18 and those of d and f blocks.

Course Name: - Biology

1. Diversity in the Living World
2. Structural Organisation in Plants
3. Morphology of Flowering Plants
4. Modes of Reproduction; Sexual Reproduction in Flowering Plants
5. The Cell; Biomolecules; Cell Cycle and Cell Division

Course Name: - Geography

1. Understand population distribution, growth, and migration patterns.
2. Analyze trends and impacts of population change.
3. Study the structure and patterns of human settlements.
4. Examine factors influencing the location and growth of settlements.
5. Understand the nature and distribution of primary, secondary, and tertiary economic activities.
6. Correlate geographic factors with economic activities and industrial development.
7. Analyze the relationship between trade, transport, and tourism.
8. Understand the concept, types, and importance of regions in development.
9. Identify causes of regional imbalance and suggest solutions.
10. Apply geographical knowledge to real-life issues, planning, and sustainable development.
11. Recognize the scope, relevance, and career applications of geography.

Course Name: - Mathematics

1. Angle and its Measurement, Trigonometry I & II, Determinants and Matrices, Straight Line
2. Complex Numbers & Quadratic Equations with operations and polar representation
3. Linear Inequalities and their graphical solutions, Principle of Mathematical Induction,
4. Permutations & Combinations with counting principles and formulas
5. Understanding scalars and vectors and algebra for vectors

Course Name: - Information Technology

1. **Theory**
   - To create awareness and acquire knowledge about new technology.
   - To acquire in-depth knowledge about technologies related to AI, IoT, 3D Printing, 5G.
   - To enable the student to think and create interest in emerging technology from career point of view.
   - To make students aware about concept of E-commerce.
2. **Skill Oriented Practicals (SOP)**
   - To inculcate web designing skills using advanced tags.
   - To make students confident to create website.
   - To develop skills for programming using DOM.
   - To develop ability to create dynamic web pages using advanced features.

Course Name: - English

1. **Speaking**
   - Use English fluently and correctly in day-to-day communication.
   - Recite poems with correct pronunciation, intonation and stress.
   - Speak with acceptable pace and pronunciation.
2. **Reading**
   - Read in order to find the intention and attitude of the writer.
   - Read aloud to understand the literary piece and appreciate it.
3. **Writing**
   - Write correctly, coherently, concisely, clearly and completely.
   - Write notes based on the given text in order to summarize and express his/her own point of view.
   - Use of simple as well as complex expressions.

Course Name: - Hindi

1. Comprehend and analyze prose and poetry texts for themes, literary devices, and expression.
2. Develop competence in writing skills—letters, essays, summaries, and formal compositions.
3. Communicate verbally with clarity in both structured (presentations) and informal settings
4. Use grammar and vocabulary accurately in speaking and writing.
5. Engage with cultural and humanistic perspectives through literature study.
6. Read unseen passages with comprehension and insight.

Course Name: - Marathi

1. Read and interpret diverse Marathi texts—prose and poetry—with understanding of language nuances.
2. Write effectively in Marathi, producing narrative, descriptive, and argumentative compositions.
3. Demonstrate oral skills in formal and informal contexts with clarity and appropriate style.
4. Apply Marathi grammar and vocabulary appropriately.
5. Appreciate literary and cultural traditions through Marathi literature.
6. Analyze language use and stylistic elements in diverse texts.

Course Name: - Health & Physical Education (HPE)

1. Understand the importance of fitness and wellness.
2. Participate actively in sports and physical activities.
3. Learn about nutrition and personal health.
4. Understand basic human anatomy and its function.
5. Develop discipline, teamwork, and leadership.
6. Practice yoga and physical exercises regularly.
7. Apply first aid and injury prevention skills.

Course Name: - Environmental Studies (EVS)

1. Understand the relationship between humans and nature.
2. Identify major environmental issues.
3. Learn concepts of sustainable development.
4. Study environmental laws and policies.
5. Participate in environmental protection activities.
6. Analyze ecological data and case studies.
7. Develop eco-friendly habits and awareness.

Course Name: - Computer Science

1. **Deepen understanding of object-oriented programming concepts using C++ or Python.**
2. **Explore file handling, database management, and SQL operations.**
3. **Design and implement advanced algorithms and data structures.**
4. **Learn about system software, networking basics, and internet technologies.**
5. **Develop mini-projects to apply programming and database skills.**
6. **Understand cyber laws, digital security, and data privacy principles.**