MOUNT ST. MARY'S SCHOOL
CLASS: XII-A (2023-2024)
SUBJECT: HISTORY
(CODE NO. 027)

Themes in Indian History Part-I (Units 1 – 4)
Theme 1 : Bricks, Beads and Bones
Theme 2 : Kings, Farmers and Towns
Theme 3 : Kinship, Caste and Class
Theme 4 : Thinkers, Beliefs and Buildings

Themes in Indian History Part-II (Units 5 – 9)
Theme 5: Through the Eyes of Travellers
Theme 6: The Bhakti-Sufi Traditions
Theme 7: An Imperial Capital: Vijayanagara
Theme 8 : Peasants, Zamindars and the State

Themes in Indian History Part-III (Units 10 – 15)
Theme 9 : Colonialism and the Countryside
Theme 10 : Rebels and the Raj
Theme 11 : Mahatma Gandhi and the Nationalist Movement
Theme 12: Framing the Constitution

PROJECT WORK (20 MARKS)
Any **one topic** to be chosen from the prescribed syllabus.

FEW SUGGESTIVE TOPICS FOR CLASS XII PROJECTS
1. The Indus Valley Civilization-Archaeological Excavations and New Perspectives
2. The History and Legacy of Mauryan Empire
3. "Mahabharat"- The Great Epic of India
4. The History and Culture of the Vedic period
5. Buddha Charita
6. A Comprehensive History of Jainism
7. Bhakti Movement- Multiple interpretations and commentaries.
8. "The Mystical Dimensions of Sufism"
9. Global legacy of Gandhian ideas
10.The Architectural Culture of the Vijayanagar Empire
11.Life of women in the Mughal rural society
12.Comparative Analysis of the Land Revenue Systems introduced by the Britishers in India
13. The Revolt of 1857- Causes; Planning & Coordination; Leadership, Vision of Unity
14.The Philosophy of Guru Nanak Dev 1
5.The Vision of Kabir
16.An insight into the Indian Constitution

LIST OF MAP WORK

Book 1

1. Mature Harappan sites: • Harappa, Banawali, Kalibangan, Balakot, Rakhigarhi, Dholavira, Nageshwar, Lothal, Mohenjodaro, Chanhudaro, KotDiji.
2. Mahajanapada and cities : • Vajji, Magadha, Kosala, Kuru, Panchala, Gandhara, Avanti, Rajgir, Ujjain, Taxila, Varanasi.
3. Distribution of Ashokan inscriptions: • Kushanas, Shakas, Satavahanas, Vakatakas,Guptas • Cities/towns: Mathura, Kannauj, Puhar,Braghukachchha • Pillar inscriptions - Sanchi, Topra, Meerut Pillar andKaushambi. • Kingdom of Cholas, CherasandPandyas.
4. Important kingdoms and towns: • Kushanas, Shakas, Satavahanas, Vakatakas,Guptas • Cities/towns: Mathura, Kanauj, Puhar, Braghukachchha, Shravasti, Rajgir, Vaishali, Varanasi,Vidisha
5. Major Buddhist Sites: • Nagarjunakonda, Sanchi, Amaravati, Lumbini, Nasik, Bharhut, BodhGaya, Shravasti, Ajanta.

Book 2

1. Bidar, Golconda, Bijapur, Vijayanagar, Chandragiri, Kanchipuram, Mysore, Thanjavur, Kolar, Tirunelveli, Quilon
2. Territories under Babur, Akbar and Aurangzeb: • Delhi, Agra, Panipat, Amber, Ajmer, Lahore, Goa

Book 3

1. Territories/cities under British Control in1857: • Punjab, Sindh, Bombay, Madras Fort St. David, Masulipatam, Berar, Bengal, Bihar, Orissa, Avadh, Surat, Calcutta, Daccan, Patna, Benaras, Allahabad and Lucknow.
2. Main centres of the Revolt of 1857: • Delhi, Meerut, Jhansi, Lucknow, Kanpur, Azamgarh, Calcutta, Benaras, Gwalior, Jabalpur, Agra,Avadh.
3. Important centres of the National Movement: • Champaran, Kheda, Ahmedabad, Benaras, Amritsar, Chauri Chaura, Lahore, Bardoli, Dandi, Bombay (Quit India Resolution), Karachi.

EXAMINATION SYLLABUS

Pre Term 1

Theme 1 : Bricks, Beads and Bones
Theme 2 : Kings, Farmers and Towns

HALF YEARLY EXAMINATION

Theme 1 : Bricks, Beads and Bones
Theme 2 : Kings, Farmers and Towns
Theme 3 : Kinship, Caste and Class
Theme 4 : Thinkers, Beliefs and Buildings
Theme 5: Through the Eyes of Travellers
Theme 6: The Bhakti-Sufi Traditions

PRE BOARD-I

Theme 3 : Kinship, Caste and Class
Theme 4 : Thinkers, Beliefs and Buildings
Theme 5: Through the Eyes of Travellers
Theme 6: The Bhakti-Sufi Traditions
Theme 7: An Imperial Capital: Vijayanagara

PRE BOARD-II

Theme 8 : Peasants, Zamindars and the State
Theme 9 : Colonialism and the Countryside
Theme 10 : Rebels and the Raj
Theme 11 : Mahatma Gandhi and the Nationalist Movement
Theme 12: Framing the Constitution

PRE BOARD-III

Complete syllabus to be assessed.

Chemistry Syllabus 2023-24
As per curriculum
(Class 12th C& 12D)
TERM-1

UNIT NO.	CHAPTER NAME
1	SOLUTIONS
2	ELECTROCHEMISTRY
6	HALOALKANES AND HALOARENES (ART INTEGRATION)
7	ALCOHOLS, PHENOLS AND ETHERS
8	ALDEHUDES, KETONES & CARBOXYLIC ACIDS

Note: Art Integration work is also included and mentioned in front of the chapters

CYCLIC TEST: UNIT-6: HALOALKANES AND HALOARENRS

PRE-TERM-1: UNIT-6: HALOALKANES & HALOARENES
UNIT-7: ALCOHOLS, PHENOLS AND ETHERS

HALF YEARLY EXAM: -

UNIT-1: SOLUTIONS
UNIT-2: ELECTROCHEMISTRY
UNIT-6: HALOALKANES & HALOARENES
UNIT-7: ALCOHOLS, PHENOLS AND ETHERS
UNIT-8: ALDEHUDES, KETONES & CARBOXYLIC ACIDS

TERM-II

UNIT NO.	CHAPTER NAME
3	CHEMICAL KINETICS
4	'd' & 'f' BLOCK ELEMENTS (Art Integration)
5	COORDINATION COMPOUNDS
9	AMINES
10	BIOMOLECULES

PRE BOARD: ENTIRE TERM-I & TERM-II SYLLABUS
BOARD EXAM: ENTIRE TERM-I & TERM-II SYLLABUS

SYLLABUS FOR ACADEMIC SESSION(2023-2024)
CLASS –XII
PHYSICS

INDEX

SYLLABUS DISTRIBUTION

1. PRE-TERM -I (MAY): CHAPTERS: 1,2.
2. HALY YEARLY(SEPTEMBER): CHAPTERS: 1,2,3,4,5,6,7,8.
3. PRE-BOARD- I(NOVEMBER): CHAPTERS: Entire syllabus
4. PRE-BOARD- II(DECEMBER): CHAPTERS: Entire syllabus

Chapter–1: Electric Charges and Fields

Electric charges, Conservation of charge, Coulomb's law-force between two- point charges, forces between multiple charges; superposition principle and continuous charge distribution.

Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Chapter–2: Electrostatic Potential and Capacitance

Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field.

Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor (no derivation, formulae only).

Unit II: Current Electricity 18 Periods

Chapter–3: Current Electricity

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge.

Unit III: Magnetic Effects of Current and Magnetism 25 Periods

Chapter–4: Moving Charges and Magnetism

Concept of magnetic field, Oersted's experiment.

Biot - Savart law and its application to current carrying circular loop.

Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields.

Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer- its current sensitivity and conversion to ammeter and voltmeter.

Chapter–5: Magnetism and Matter

Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines.

Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

Unit IV: Electromagnetic Induction and Alternating Currents 24 Periods

Chapter–6: Electromagnetic Induction

Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction.

Chapter–7: Alternating Current

Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current.

AC generator, Transformer.

Unit V: Electromagnetic waves 04 Periods

Chapter–8: Electromagnetic Waves

Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit VI: Optics 30 Periods

Chapter–9: Ray Optics and Optical Instruments

Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism.

Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Chapter–10: Wave Optics

Wave optics: Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only).

Unit VII: Dual Nature of Radiation and Matter 08 Periods

Chapter–11: Dual Nature of Radiation and Matter

Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Experimental study of photoelectric effect

Matter waves-wave nature of particles, de-Broglie relation.

Unit VIII: Atoms and Nuclei 15 Periods

Chapter–12: Atoms

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in nth orbit, hydrogen line spectra (qualitative treatment only).

Chapter–13: Nuclei

Composition and size of nucleus, nuclear force

Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

Unit IX: Electronic Devices 10 Periods

Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits

Energy bands in conductors, semiconductors and insulators

(qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.

PRACTICALS

Total Periods 60

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

Record of at least 8 Experiments [with 4 from each section], to be performed by the students.

Record of at least 6 Activities [with 3 each from section A and section B], to be performed by the students.

The Report of the project carried out by the students.

Evaluation Scheme

Max. Marks: 30

Time 3 hours

Two experiments one from each section 7+7 Marks

Practical record [experiments and activities] 5 Marks

One activity from any section 3 Marks

Investigatory Project 3 Marks

Viva on experiments, activities and project 5 Marks

Total 30 marks

Experiments SECTION–A

1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.
2. To find resistance of a given wire / standard resistor using metre bridge.
3. To verify the laws of combination (series) of resistances using a metre bridge.

OR

To verify the laws of combination (parallel) of resistances using a metre bridge.

4. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
5. To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same.

OR

To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.

6. To find the frequency of AC mains with a sonometer.

Activities

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

SECTION-B

Experiments

1. To find the value of *v* for different values of *u* in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between *u* and *v* or between *1/u* and *1/v* .
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.
7. To find the refractive index of a liquid using convex lens and plane mirror.
8. To find the refractive index of a liquid using a concave mirror and a plane mirror.
9. To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.

Activities

1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
2. Use of multimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe diffraction of light due to a thin slit.
6. To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
7. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

Suggested Investigatory Projects

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing an LDR because of a variation in
(a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).
(b) the distance of a incandescent lamp (of fixed power) used to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle.
4. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
5. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
6. To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
7. To study the factor on which the self-inductance of a coil depends by observing the

effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.
8. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.

MOUNT ST. MARY'S SCHOOL
SYLLABUS 2023-24
Classes: XII
Subject: Biology (AS PER RATIONALISED SYLLABUS 2023- 24)

PRE- TERM 1	**CHAPTER 1, 2, 3**
HALFYEARLY	**CHAPTER 1, 2, 3, 4, 5 ,6,7, 8**
PRE- TERM 2	**CHAPTER 9, 10, 11**
PRE- BOARD 1	**ENTIRE SYLLABUS**

BIOLOGY REVISED SYLLABUS FOR CLASS XII – 2023-24

UNIT-VI Reproduction

Chapter-1:

Sexual Reproduction in Flowering Plants

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Chapter-2: **Human Reproduction**

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Chapter-4: **Reproductive Health**

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).

UNIT-VII

Genetics and Evolution

Chapter-5: **Principles of Inheritance and Variation**

Heredity and variation: Mendelian inheritance; deviations from Mendelism – incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in human being, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans -thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Chapter-6:

Molecular Basis of Inheritance

Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central Dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; Genome, Human and rice genome projects; DNA fingerprinting.

Chapter-7: **Evolution**

- Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy – Weinberg's principle; adaptive radiation; human evolution.

UNIT-VIII

Biology and Human Welfare

Chapter-8: **Human Health and Diseases**

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Chapter-10: **Microbes in Human Welfare**

Microbes in food processing, industrial production, sewage treatment, energy generation and microbes as bio-control agents and bio-fertilizers. Antibiotics; production and judicious use.

UNIT-IX **Biotechnology and its Applications**

Chapter-11: **Biotechnology - Principles and Processes**

Genetic Engineering (Recombinant DNA Technology).

Chapter-12: **Biotechnology and its Application**

Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, biopiracy and patents.

UNIT-X

Ecology and Environment

Chapter-13: **Organisms and Populations**

Organisms and environment: Habitat and niche, population and ecological adaptations; population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution.

Chapter-15: **Biodiversity and its Conservation**

Biodiversity - Concept, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.

Mount St. Mary's School
Syllabus(2023-24)
Informatics Practices(065) -Class 12

Cyclic Test--1(First Term)

Database Query using SQL

Preterm-1 (First Term)

Database Concepts ,queries and joins

Cyclic Test-2 (First Term)

Societal Impacts
Series in Pandas

Half Yearly Exam

Database Query using SQL , Joins
Data Structures -Series and Data Frames in Pandas
Societal Impacts

PreBoard-1 (Second Term)

Data Structures -Series and Data Frames in Pandas
Networks
Data Visualisation

PreBoard-2

Database Query using SQL , Joins
Data Frames in Pandas
Societal Impacts

PreBoard-3

Full Course

CLASS XII
SUBJECT: POLITICAL SCIENCE (CODE NO. 028)
SYLLABUS 2023-2024

BOOK (PART A):

CONTEMPORARY WORLD POLITICS

Ch-1 The End of Bipolarity
Ch-2 New Centres of Power
Ch-3 South Asia and the Contemporary World
Ch-4United Nations and its Organizations
Ch-5 Security in the contemporary world
Ch-6 Environment and natural resources
Ch-7 Globalisation

BOOK PART B:

POLITICS IN INDIA SINCE INDEPENDENCE

Ch- 1 Challenges of Nation-Building
Ch-2 Era of one party dominance
Ch -3 **Planning and development**
Ch-4 India's Foreign Policy
Ch 5 Challenges to the restoration of then congress system
Ch-6 The Crisis of Democratic Order
Ch-7 Regional aspirations
Ch-8 Recent Developments in Indian Politics

Project Work: 20 Marks

Details of Project Work

1. The Project work will be implemented for 20 Marks.
2. Out of 20 marks, 10 marks are to be allotted to viva voce and 10 marks for project work.
3. For class XII, the evaluation for 20 marks project work should be done jointly by the internal as well as the external examiners.
4. **The Project can be made on any of the topics given in the syllabus**.

EXAMNIATION SYLLABUS

PRE TERM -I EXAM

PART A

Ch-1 The End of bipolarity

PART -B

Ch-1 Challenges of Nation-Building

Ch-3 Politics of Planned Development

HALF YEARLY EXAMINATION

PART A

Ch-1The End of bipolarity

Ch-2 New Centres of Power (New Name)

Ch-3 South Asia and the Contemporary World

Ch -4 United Nations organisations

PART B

Ch-1 Challenges of Nation-Building

Ch-2 Era of one party dominance

Ch-3 Politics of Planned Development

Ch-4 India's Foreign Policy

Ch-5 Challenges to the restoration of congress

Ch-6 Crisis of democratic order

PRE Board -1

PART A

Ch-5 Security in the contemporary world

Ch-6 Environment and natural resources

Ch-7 Globalisation

PART B

Ch-1 challenges of nation building

Ch-3 Planning and Development

Ch-7 Regional aspirations

Ch-8 Recent Developments in Indian Politics

PRE -BOARD -II

PART A

Ch-1 The End of Bipolarity

Ch-2 New Centres of Power

Ch-3 South Asia and the Contemporary World

Ch-4United Nations and its Organizations

Part B
Ch-2 Era of one party dominance
Ch-4 India's foreign policy
Ch-5 Challenges and restoration of congress
Ch-6 Crisis of democratic order
PRE-BOARD III
Full Syllabus of Both Books Part A and Part B

MOUNT ST. MARY'S SCHOOL
CLASS XII
SUBJECT- PSYCHOLOGY (CODE NO. 037)
SYLLABUS- 2023-24

Cyclic
Chapter 3 – Meeting Life Challenges

Pre Term 1-
Chapter 1 – Variations in Psychological Attributes
Chapter 4 – Psychological Disorders

Half Yearly-
Chapter 1 – Variations in Psychological Attributes
Chapter 2 – Self and Personality
Chapter 3 – Meeting Life Challenges
Chapter 4 – Psychological Disorders
Chapter 5 – Therapeutic Approaches

PRE BOARDS-
Chapter 1 – Variations in Psychological Attributes
Chapter 2 – Self and Personality
Chapter 3 – Meeting Life Challenges
Chapter 4 – Psychological Disorders
Chapter 5 – Therapeutic Approaches
Chapter 6 – Attitude and Social Cognition
Chapter 7 – Social Influence and Group Processes

ECONOMICS CLASS XII			
XII	PRE-TERM 1	1. National income and related aggregates 2. Money and banking 3. India on the eve of Independence	Short videos on all units of Class XII syllabus

	HALF YEARLY	Macroeconomics 1. National income and related aggregates 2. Money and banking 3. Income and employment 4. Government budget 5. Balance of payments Indian Economic Development 1. Human Capital Formation 2. Rural development 3. Sustainable development 4. India on the eve of Independence	Project work as prescribed by CBSE
	PRE-BOARD 1	Macroeconomics 1. National income and related aggregates 2. Money and banking 3. Government budget Indian Economic Development 1. Comparison of India with China and Pakistan 2. Human Capital Formation 3. Employment	
	PRE-BOARD 2	Macroeconomics 1. Income and employment 2. Government budget 3. Balance of payments Indian Economic Development 1. India on the eve of Independence 2. Indian Economy 1950-90 3. Economic reforms since 1991	
	PRE – BOARD 3	Entire Syllabus as per CBSE.	

Please note: Project work for both classes XI and XII will be assigned in the class.

ENGLISH CORE

CODE NO. 301

CLASS – XII

2023-24

Section A – 22 Marks
Reading Skills

I Reading Comprehension through Unseen Passage (12+10 = 22 Marks)

1. One unseen passage to assess comprehension, interpretation, analysis and inference. Vocabulary assessment will also be assessed via inference. The passage may be factual, descriptive or literary.
2. One unseen **case-based factual** passage with verbal/visual inputs like statistical data, charts etc. to assess comprehension, interpretation, analysis, inference and evaluation.

Note: The combined word limit for both the passages will be 700-750 words.

Multiple Choice Questions / Objective Type Questions and Short Answer type Questions(to be answered in 40-50 words) will be asked.

Section B – 18 Marks Creative Writing Skills

II. Creative Writing Skills

3. Notice, up to 50 words. One out of the two given questions to be answered.**(4 Marks**: Format :1 / Content : 2 / Accuracy of Spelling and Grammar : 1).
4. Formal/Informal Invitation and Reply, up to 50 words. One out of the two given questions to be answered. **(4 Marks**: Format : 1 / Content : 2 / Accuracy of Spellingand Grammar :1).
5. Letters based on verbal/visual input, to be answered in approximately 120-150 words. Lettertypes include application for a job with bio data or resume. Letters to the editor (giving suggestions or opinion on issues of public interest) . One out of the two given questions tobe answered . **(5 Marks**: Format : 1 / Organisation of Ideas: 1/Content : 2 / Accuracy of Spelling and Grammar :1).
6. Article/ Report Writing, descriptive and analytical in nature, based on verbal inputs, to be answered in 120-150 words. One out of the two given questions to be answered . **(5 Marks**: Format : 1 /Organisation of Ideas: 1/Content : 2 / Accuracy of Spelling and Grammar :1).

Section C – 40 Marks

Literature Text Book and Supplementary Reading Text

This section will have variety of assessment items including Multiple Choice Questions, Objective Type Questions, Short Answer Type Questions and Long Answer Type Questions to assess comprehension, interpretation, analysis, evaluationand extrapolation beyond the text.

7. One Poetry extract out of two, from the book **Flamingo,** to assess comprehension, interpretation, analysis, inference and appreciation. **(6x1=6 Marks)**

8. One Prose extract out of two, from the book **Vistas,** to assess comprehension, interpretation,analysis, evaluation and appreciation. **(4x1=4 Marks)**

9. One prose extract out of two from the book **Flamingo,** to assess comprehension, interpretation, analysis, inference and evaluation. **(6x1=6Marks)**

10. Short answer type questions **(from Prose and Poetry from the book Flamingo**), tobe answered in 40-50 words each. Questions should elicit inferential responses through critical thinking. Five questions out of the six given, are to be answered.

(5x2=10 Marks)

11. Short answer type questions, from **Prose (Vistas)**, to be answered in 40- 50 wordseach. Questions should elicit inferential responses through critical thinking. Any twoout of three questions to be done. **(2x2=4 Marks)**

12. One Long answer type question, from **Prose/Poetry (Flamingo)**, to be answered in 120-150 words. Questions can be based on incident / theme / passage / extract / eventas reference points to assess extrapolation beyond and across the text. The question will elicit analytical and evaluative response from the student. Any one out of two questions to be done. **(1x5=5 Marks)**

13. One Long answer type question, based on the chapters from the book **Vistas**, to be answered in 120-150 words, to assess global comprehension and extrapolation beyondthe text. Questions to provide analytical and evaluative responses using incidents, events, themes, as reference points. Any one out of two questions to be done.

(1x5=5 Marks)

Prescribed Books

1. **Flamingo:** English Reader published by National Council of Education Researchand Training,New Delhi

(Prose)

- The Last Lesson
- Lost Spring
- Deep Water
- The Rattrap
- Indigo
- Poets and Pancakes
- The Interview
- Going Places

(Poetry)

- My Mother at Sixty-Six
- Keeping Quiet
- A Thing of Beauty
- A Roadside Stand
- Aunt Jennifer's Tigers

2. **Vistas:** Supplementary Reader published by National Council of Education Research andTraining, New Delhi

The Third Level

- The Tiger King
- Journey to the End of the Earth
- The Enemy
- On the Face of It
- Memories of Childhood
- The Cutting of My Long Hair
- We Too are Human Beings

INTERNAL ASSESSMENT
Assessment of Listening Skills - 05 marks. Assessment of Speaking Skills – 05 Marks Project

Question Paper Design
Code No. 301
2023-24

English CORE XII

Section	Competencies	Total marks
Reading Skills	Conceptual understanding, decoding, Analyzing, inferring, interpreting, appreciating, literary, conventionsand vocabulary, summarizing and using appropriate format/s.	22
Creative Writing Sills	Conceptual Understanding, application of rules, Analysis, Reasoning, appropriacy of style and tone, using appropriate format and fluency, inference, analysis, evaluation and creativity.	18
Literature Text Book and Supplementary Reading Text	Recalling, reasoning, critical thinking, appreciating literary convention, inference, analysis, creativity with fluency.	40
	TOTAL	**80**
Internal Assessment	Assessment of Listening and Speaking Skills • Listening • Speaking	**10** 5+5
	• Project Work	**10**
	GRAND TOTAL	**100**

Annexure I

Guidelines for Internal Assessment

Classes XI-XII

ALS must be seen as an integrated component of all four language skills rather than a compartment of two. Suggested activities, therefore, take into consideration an integration of the four language skills but during assessment, emphasis willbe given to speaking and listening, since reading and writing are already being assessed in the written exam.

Classes XI-XII Total Marks: 20

Assessment of Listening and Speaking Skills: (5+5=10 Marks)

i. **Activities:**

- Subject teachers must refer to books prescribed in the syllabus.
- In addition to the above, teachers may plan their own activities and create their own material for assessingthe listening and speaking skills.

ii. **Parameters for Assessment:** The listening and speaking skills are to be assessed on the following parameters:

a. Interactive competence (Initiation & turn taking, relevance to the topic)

b. Fluency (cohesion, coherence and speed of delivery)

c. Pronunciation

d. Language (grammar and vocabulary)

A suggestive rubric is given below:

	1.	2.	3.	4.	5.
Interaction	• Contributions aremainly unrelatedto those of otherspeakers • Shows hardly any initiative in the development of conversation • Very limitedinteraction	• Contributions are oftenunrelated to those of the other speaker • Generally passivein the development of conversation	• Develops interaction adequately, makes however minimal effortto initiate conversation • Needs constant prompting totake turns	• Interaction is adequately initiated and developed • Takes turnbut needs some prompting	• Initiates & logically develops simple conversation on familiar topics • Takes turns appropriately
Fluency & Coherence	• Noticeably/ long pauses; rate of speech is slow • Frequent repetition and/orself-correction this is all right in informal conversation • Links only basic sentences; breakdown of coherence evident.	• Usually fluent; produces simple speech fluently, but loses coherence in complex communication • Often hesitates and/or resorts to slow speech • Topics partly developed; not always concluded logically	• Is willing to speak at length, however repetition is noticeable • Hesitates and/or self corrects; occasionally loses coherence • Topics developed, but usually not logically concluded	• Speaks without noticeable effort, with a little repetition • Demonstrates hesitation to find words or use correct grammatical structures and/or self-correction • Topics not fully developed to merit.	• Speaks fluently almost with no repetition & minimal hesitation Develops topic fully & coherently

Pronunciation	• Frequent inaccurate pronunciation • Communicationis severely affected	• Frequently unintelligible articulation • Frequent phonological errors • Major communication problems	• Largely correct pronunciation &clear articulation except occasional errors	• Mostly correct pronunciation& clear articulation • Is clearly understood most of the time; very fewphonological errors	• Pronounces correctly & articulates clearly • Is always comprehensible • uses appropriate intonation
Vocabulary & Grammar	• Demonstrates almost no flexibility, and mostly struggles for appropriate words • Many Grammatical errors impacting communication	• Is able to communicate on some of the topics, with limited vocabulary. • Frequent errors, but self-corrects	• Is able to communicate on most of the topics, with limited vocabulary. A few grammatical errors	• Is able to communicate on most of the topics with appropriate vocabulary • Minor errors that do not hamper communication	• Is able to communicate on most of the topics using a wide range of appropriate vocabulary, using new words and expressions No grammatical errors

iii. Schedule:

- The practice of listening and speaking skills should be done throughout the academic year.
- The final assessment of the skills is to be done as per the convenience and schedule of the school.

Project Work + Viva: 10 Marks

Out of ten marks, 5 marks will be allotted for the project report/script /essay etc. and 5 marks for the viva

I. Schedule:

- Schools may refer to the suggestive timeline given in these guidelines for the planning, preparation and viva-voceof ALS based projects.

- The final assessment of the skills may be done on the basis of parameters suggested by the Board. Language teachers, however, have the option to adopt/ modify these parameters according to their school specificrequirements.

II. Suggestions for Project Work:

- The Project can be inter-disciplinary in theme. The ideas/issues highlighted in the chapters/ poems/ drama given the prescribed books can also be developed in the form of a project. Students can also take up any relevant andage-appropriate theme.
- Such topics may be taken up that provide students with opportunities for listening and speaking.Some suggestions are as follows:

a) Interview-Based research:

Example:

- Students can choose a topic on which to do their research/ interview, e.g. a student can choose the topic : " Evolving food tastes in my neighbourhood" or "Corona pandemic and the fallout on families." Read the available literature.
- The student then conducts interviews with a few neighbours on the topic. For an interview, with the help of the teacher, student will frame questions based on the preliminary

- The student will then write an essay/ write up / report etc. up to 1000 words on his/her research and submit it. He / She will then take a viva on the research project. The project can be done in individually or in pairs/ groups

b) Students listen to podcasts/ interviews/radio or TV documentary on a topic and prepare a report countering or agreeing with the speakers. Write an 800 - 1000 words report and submit. Take aviva on the report.

c) Students create their own video/ Audio, after writing a script. Before they decide a format, the following elements canbe taken into consideration:

- Theme/topic of the audio / video. Would the child like to pick a current issue or something artisticlike theatre?
- What are the elements that need to be part of the script?
- Will the video/audio have an interview with one or more guests?
- Would they prefer to improvise while chatting with guests, or work from a script?
- What would be the duration?
- How would they present the script/report to the teacher, e.g. Can it be in the form of a narrative?

d) Students write**, direct and present a theatrical production, /One act play**

This will be a project which will be done as a team. It will involve planning, preparation and presentation. In short, various language skills will be utilised. There will be researching, discussion, writing the script, auditioning and ultimately producing the play. The project will end with a presentation and subsequently a viva. Teachers will be ableto assess the core language skills of the students and help them grow as 21st century critical thinkers.

III. Instructions for the Teachers:-

1. **Properly orient students about the Project work, as per the present Guidelines.**
2. **Facilitate the students in the selection of theme and topic.**
3. Create a rubric for assessment and share with the students before they start so that theyknow the parameters ofassessment:

    - Teachers need to familiarize themselves with the method of assessing students withthe rubric-- a tablewith different criteria and a grading scale.
    - Choose the criteria on which you will grade students and list them along the left side of thepage.
    - Create an even number of columns along the top of the page. These columns will represent potential skilllevels of the students.
    - Assessing students on four/five criteria is an easy way to begin. For each criterion,define the ability thata student would exhibit at each of the levels.
    - The more detailed you make your criteria, the easier it will be to evaluate each student and define the level atwhich the student is presenting**.**

{Sample Rubric is attached at the end for reference}

IV. Parameters for Overall Assessment:-

1. Pronunciation:

- When evaluating the pronunciation of the students, teachers must listen for clearly articulatedwords, pronunciationof unusual spellings and intonation.
- Assess the students for the pronunciation skills and determine at which level the student needs improvement.

2. **Vocabulary**:

- After noting their pronunciation levels, evaluate the students on the use of extensive and appropriate **vocabulary** during the viva. Check if students are using vocabulary appropriate tothe context about which they are speaking.

3. **Accuracy**:

- Grammar has always been an important component of language skills. As students speak/ answer the questions during the viva, listen to their **grammatical structures**. *Are they competent enough to use multiple tenses? Is their word order correct in a given sentence?* Aneffective speaker will automatically use the correct grammaticalstructures of his language.

4. **Communication**:

- Assessing the **communication skills** of the students means looking at more than language. Look at how creatively students use the language to make their points understood. Students with a low level of vocabulary andgrammar may still have good communication skills if they areable to make the teacher understand their point of view.

5. **Interaction**:

- During the viva teachers need to ask the students some questions. Questions need to be basedon the projectsthat have been suggested or chosen by the students.
- It is imperative for a teacher to read the essays/project reports before they can be ready to askquestions.

- Teachers need to observe how students answer the questions that are posed to them: *Are they able to understand and answer questions independently or can they answer only when the questions are translated into simpler words or repeated? Are they able to give appropriate responses in a conversation*?
- These elements of **interaction** are necessary for clear and effective communication. A student with effectiveinteraction skills will be able to answer questions with relative ease andfollow the flow of conversation.

6. **Fluency**:

- Fluency may be the easiest quality to judge in the students' speech: *How comfortable are theyas they speak and express themselves? How easily do the words come out? Are there inappropriate pauses and gaps in the way a student speaks?*

- **Fluency** is a judgement of this communication and is an important criterion when evaluating speaking skills. These criteria: pronunciation, vocabulary, accuracy, interaction and fluency areall the hallmarks of a student's overall speaking abilities.
- Teachers must also remember that some **students may excel in one area and struggle in another**. Helping the students understand these issues will enable them to become effective speakers in future. Let your students knowthat you will be assessing them in these various areas when you evaluate their progress and encourage them to work and improve in these areas.
- **Finally,** teachers must remember that a proper evaluation of the students will take into consideration **more than just one oral interview on the final ASL** project. Teachers must take note of a student's progress throughout the academic year.

V. Project-Portfolio/ Project Report

The **Project-Portfolio/Project Report** is a compilation of the work that the students produce during theprocess of workingon their ALS Project.

The Project-Portfolio may include the following:

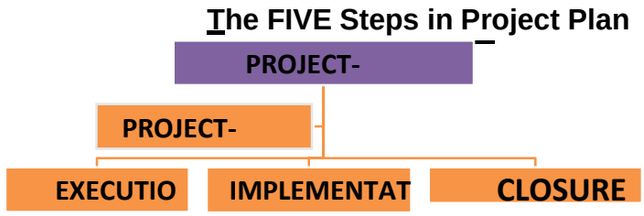
- Cover page, with title of project, school details/details of students.
- Statement of purpose/objectives/goals
- Certificate of completion under the guidance of the teacher.
- Students Action Plan for the completion of assigned tasks.
- Materials such as scripts for the theatre/role play, questionnaires for interview, written assignments, essays,survey-reports and other material evidence of learning progress andacademic accomplishment.
- The 800-1000 words essay/Script/Report.
- Student/group reflections.
- If possible, Photographs that capture the positive learning experiences of the student(s).
- List of resources/bibliography.

The following points must be kept for consideration while assessing the project portfolios:

- Quality of content of the project

- Accuracy of information
- Adherence to the specified timeline
- Content in respect of (spellings, grammar ,punctuation)
- Clarity of thoughts and ideas
- Creativity
- Contributions by group members
- Knowledge and experience gained

VI. Suggestive Timeline:



Month	Objectives
Planning and Researchfor the Project Work **Preferably til** **lNovember-December**	• Teachers plan a day to orient students about the ALS projects, details are sharedwith all stakeholders. • Students choose a project, select team members and develop project- plan. • Group meets (preferably online) and reports to the team leader about theprogress: shortfalls and successes are detailed. • Team leader apprises teacher-mentor. • Students working individually or in pairs also update the teachers. • A logical, deliverable and practical plan is drafted by the team/ pair/individual.Goals/objectives are clearly defined for all. • Work is delegated to team members by the team leader. Students wishing to workalone develop their own plan of Action. • Detailed project schedules are shared with the teacher.
December-January	• Suggestions and improvements are shared by the teacher, wherever necessary. • Group members coordinate and keep communication channels open forinteraction**.** • Gaps (if any) are filled with the right skill sets by the Team Leader/ individualstudent.
	• The final draft of the project portfolio/ report is prepared and submitted forevaluation.
January-February	• Students are assessed on their group/pair/individual presentations on allotteddays. Final Viva is conducted by the External/Internal examiner.
February-March or as per the timelinesgiven bythe Board	• Marks are uploaded on the CBSE website.

SAMPLE RUBRIC FOR ALS Project Work(For Theatre/Role Play/Oral presentation/Interview/Podcast)

CATEGORY	1	2	3	4	5
TIME LIMIT	Presentation is less than or more than 5 minutes long	Presentation exceeded or less than specified time limit by 4 to 5minutes	Presentation exceeded or lessthan specifiedtime limit by 3 to 4 minutes	Presentation exceeded or lessthan specified time limit by 2 to 3 minutes	Student/ group adhered to the given time limit

CONTENT/SCRIPT/ QUESTIONNAIRE	Script is not related to topic or issue	Well written script/content showslittle understanding of parts of topic	Well written script/content showsgood understanding ofparts of topic	Well written script/content shows agood understanding ofsubject topic	Well written script/content shows full understanding ofsubject topic
CREATIVITY	No props/costumes/ stage presentation lack-lustre	Some work done,average stage set- up and costumes	Well organized presentation, could have improved	Logical use of props reasonable work done,creative	Suitable props /honest effort seen/ considerable work done/ Creative and relevant costumes
PREPAREDNESS	Student /group seems to be unprepared	Some preparedness visible, but Rehearsal is lacking	Somewhat prepared, rehearsal is lacking	Good preparedness, but need better rehearsal	Complete preparedness/ rehearsed presentation
CLARITY OF SPEECH	Lack of clarity in presentation many words mispronounced	Speaks clearly, some words are mispronounced	Speaks clearly 90% of the time/ afew mispronounced words	Speaks clearly and distinctly 95% of time/ few mispronounced words	Speaks clearly distinctly 95% of time/ fluency in pronunciation
USE OF PROPS (Theatre/Role Play)	Only 1/no relevantprops used	1 to 2 relevant props used	2 to 3 relevant props used	3 to 4 relevant props used	4 to 5 relevant props used
EXPRESSION/ BODY LANGUAGE	Very little use of facial expressions/ body language, doesnot generatemuch interest	Little Use of facial expressions and body language	Facial expressions and body languageare used to try to generate some enthusiasm	Facial expression and body language sometimes generate strong enthusiasm with the topic	Facial expressionand body language generate strong enthusiasm with the topic
PORTFOLIO-PRESENTATION	Inadequate & unimpressive	Somewhat suitable & convincing	Adequate & relevant	Interesting, enjoyable & relevant	Brilliant, creative& exceptional

SYLLABUS 2023-24
MATHEMATICS
CLASS – 12

PRE TERM - 1

1. MATRICES
2. DETERMINANTS
3. INVERSE TRIGONOMETRIC FUNCTIONS
4. LINEAR PROGAMMING

CYCLIC TEST 2

1. RELATIONS AND FUNCTIONS
2. CONTINUITY AND DIFFERENTIABILITY
3. APLICATION OF DERIVATIVES

HALF YEARLY EXAMINATION

1. RELATIONS AND FUNCTIONS
2. INVERSE TRIGONOMETRIC FUNCTIONS
3. MATRICES
4 DETERMINANTS
5. CONTINUITY AND DIFFERENTIABILITY
6 APPLICATION OF DERIVATIVES
7. INTEGRALS
8. LINEAR PROGRAMMING

PRE – BOARD I , II

1. RELATIONS AND FUNCTIONS
2. INVERSE TRIGONOMETRIC FUNCTIONS
3. MATRICES
4 DETERMINANTS
5. CONTINUITY AND DIFFERENTIABILITY
6 APPLICATION OF DERIVATIVES
7. INTEGRALS
8. LINEAR PROGRAMMING
9. APPLICATION OF INTEGRALS
10. DIFFERENTIAL EQUATIONS
11. VECTOR ALGEBRA
12. THREE DIMENSIONAL GEOMETRY
13. PROBABILITY

NOTE: ACTIVITIES AND ASSIGNMENTS BASED ON AIL(ART INTEGRATED LEARNING) WILL BE CARRIED OUT EVERY MONTH

PHYSICAL EDUCATION

SYLLABUS (2023-2024)

CLASS XII

FIRST TERM

PRE-TERM I:

Unit 1: Management of Sporting Events
Unit 2: Children and Women in Sports

HALF-YEARLY:

Unit 1: Management of Sporting Events
Unit 2: Children & women in sports
Unit 3: Yoga as preventive measure for lifestyle disease
Unit 4: Physical education & sports for CWSN (children with special needs-Divyang)
Unit 5: Sports & nutrition
Unit 6: Test and measurement in sports

SECOND TERM

PRE-TERM II:

Unit 7: Physiology & injuries in sports
Unit 8: Biomechanics & sports

PRE-BOARD I:

Unit 4: Physical education & sports for CWSN (children with special needs-Divyang)
Unit 5: Sports & nutrition
Unit 6: Test and measurement in sports
Unit 7: Physiology & injuries in sports
Unit 8: Biomechanics and sports

PRE-BOARD II:

Unit 1: Management of Sporting Events
Unit 2: Children & women in sports
Unit 3: Yoga as preventive measure for lifestyle disease
Unit 9: Psychology and sports
Unit 10: Training in sports

PRE-BOARD III:

Unit 1: Management of Sporting Events
Unit 2: Children & women in sports
Unit 3: Yoga as preventive measure for lifestyle disease
Unit 4: Physical education & sports for CWSN (children with special needs-Divyang)
Unit 5: Sports & nutrition
Unit 6: Test and measurement in sports
Unit 7: Physiology & injuries in sports
Unit 8: Biomechanics and sports
Unit 9: Psychology and sports
Unit 10: Training in sports

Mount St. Mary's School
Revised Syllabus 2023-24
Class: XII
Subject: Accountancy

PRE TERM 1:

Part C-

Chapter 1 – Financial Statements of a Company
Chapter 2- Financial Statements Analysis
Chapter 3- Comparative & Common Size Statements
Chapter 4 – Accounting Ratios
Chapter 5 – Cash Flow Statement
Chapter 1 – Fundamentals of Partnership (Part A)

Half Yearly:

Part C-

Chapter 1 to 5

Part A-

Chapter 1 – Fundamentals of Partnership
Chapter 2- Goodwill: Nature & Valuation
Chapter 3- Change in Profit Sharing Ratio
Chapter 4- Admission of a Partner
Chapter 5- Retirement of a Partner
Chapter 6- Death of a Partner
Chapter 7- Dissolution of Partnership Firm

Pre Term 2:

Chapter 8- Accounting for Share Capital
Chapter 9- Issue of Debentures

Pre Board 1:

All Chapters of Part A

Pre Board 2:

All Chapter of Part B and C

Pre Board 3:

Part A
Part B
Part C

Mount St. Mary's School
Revised Syllabus 2023-24
Class: XII
Subject: Business Studies

Pre Term 1:
1. Nature and Significance of Management
2. Principles of Management
4. Planning

Half Yearly:
Chapters 1-3
3. Business Environment
5. Organising
6. Staffing
7. Directing
8. Controlling
12. Consumer Protection

Pre Term 2:
9. Financial Management
10. Financial Markets

Pre Board 1:
9. Financial Management
10. Financial Markets
11.Marketing Management
12. Consumer Protection

Pre Board 2
Chapter 1 to Chapter 8

Pre Board 3
Chapter 1 to Chapter 12

Computer Science
CLASS-XII
Code No. 083
2023-24

1. Prerequisites
Computer Science- Class XI

2. Learning Outcomes
Student should be able to
- **a)** apply the concept of function.
- **b)** explain and use the concept of file handling.
- **c)** use basic data structure: Stacks
- **d)** explain basics of computer networks.
- **e)** use Database concepts, SQL along with connectivity between Python and SQL.

3. Distribution of Marks:

Unit No.	Unit Name	Marks	Periods	
			Theory	Practical
I	Computational Thinking and Programming - 2	40	70	50
II	Computer Networks	10	15	---
III	Database Management	20	25	20
	Total	70	110	70

4. Unit wise Syllabus

Unit I: Computational Thinking and Programming – 2

- Revision of Python topics covered in Class XI.
- Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)
- Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths
- Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file
- Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file
- CSV file: import csv module, open / close csv file, write into a csv file using csv.writer() and read from a csv file using csv.reader( )
- Data Structure: Stack, operations on stack (push & pop), implementation of stack using list.

Unit II: Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)
- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves)
- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)
- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting

Unit III: Database Management

- Database concepts: introduction to database concepts and its need
- Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join
- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications

5. Practical

S.No.	Unit Name	Marks (Total=30)
1	**Lab Test:** 1. Python program (60% logic + 20% documentation + 20% code quality)	**8**
	2. A stub program with Python SQL connectivity must be provided with blanks (4 blanks) to be filled by the student with the desired SQL query.	**4**
2	Report file: • Minimum 15 Python programs. • SQL Queries – Minimum 5 sets using one table / two tables. • Minimum 4 programs based on Python - SQL connectivity	**7**
3	Project (using concepts learnt in Classes 11 and 12)	**8**
4	Viva voce	**3**

6. Suggested Practical List:

Python Programming

- Read a text file line by line and display each word separated by a #.
- Read a text file and display the number of vowels/consonants/uppercase/lowercase characters in the file.
- Remove all the lines that contain the character 'a' in a file and write it to another file.
- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
- Write a Python program to implement a stack using list.
- Create a CSV file by entering user-id and password, read and search the password for given user- id.

Database Management

- Create a student table and insert data. Implement the following SQL commands on the student table:
    - ALTER table to add new attributes / modify data type / drop attribute
    - UPDATE table to modify data
    - ORDER By to display data in ascending / descending order
    - DELETE to remove tuple(s)
    - GROUP BY and find the min, max, sum, count and average
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

7. Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XII)
- Support Materials on the CBSE website.

8. Project

The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity. This should be done in groups of two to three students and

should be started by students at least 6 months before the submission deadline. The aim here is to find a real world problem that is worthwhile to solve.

Students are encouraged to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves.

The students should be sensitised to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.