



ST. MARY'S SENIOR SECONDARY SCHOOL, RUDRAPUR

ANNUAL SYLLABUS STD. XII (2024-25)

ENGLISH CORE (301)

MONTH	UNIT NAME
April	The Last Lesson Third Level The Tiger King Notice Writing Job Application
May	My Mother at Sixty Six Article Writing Lost Spring Letter to Editor
QUATERLY EXAM	
July	Deep Water Ratrap Indigo Journey to the end of the earth Report Writing
August	Interview The Enemy Invitation and Reply to Invitation A Thing of Beauty
September	A Roadside stand Poets and Pancakes
HALF YEARLY EXAMINATION	
October	On the Face of it Going Places Memories of childhood Aunt Jennifer's Tigers
November	Revision I PRE-BOARD

PHYSICS (042)

MONTHS	UNITS
MARCH	<p style="text-align: center;">Unit I: Electrostatics</p> <p style="text-align: center;">Chapter–1: Electric Charges and Fields</p> <p>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).</p>
APRIL	<p style="text-align: center;">Chapter–2: Electrostatic Potential and Capacitance</p> <p>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, formula only).</p>
MAY	<p style="text-align: center;">Unit II: Current Electricity</p> <p style="text-align: center;">Chapter–3: Current Electricity</p> <p>Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, 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 parallel Kirchhoff's rule, wheat stone bridge</p> <p style="text-align: center;">QUARTERLY EXAMINATION</p> <p style="text-align: center;">Unit III: Magnetic Effects of Current and Magnetism</p> <p style="text-align: center;">Chapter–4</p> <p style="text-align: center;">Chapter–5: Magnetism and Matter ;</p> <p>Bar magnet as an equivalent solenoid, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field, magnetic field lines; Magnetic properties of materials – Para, dia and ferro magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.</p>
JULY	<p style="text-align: center;">Unit IV: Electromagnetic Induction and Alternating Currents</p> <p style="text-align: center;">Chapter–6: Electromagnetic Induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.</p> <p style="text-align: center;">Chapter–7: Alternating Current : Peak and RMS value of alternating current/voltage; reactance and impedance, LCR series circuit, resonance; power in AC circuits, power factor, wattless current. AC generator and transformer.</p>

AUGUST	<p style="text-align: center;">Unit V: Electromagnetic waves Chapter-8</p> <p style="text-align: center;">Basic idea of displacement current, Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.</p>
	<p style="text-align: center;">Unit VI: Optics</p> <p>Chapter-9: Ray Optics and Optical Instruments: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, 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.</p>
SEPTEMBER	<p style="text-align: center;">HALF YEARLY EXAMINATION</p> <p>Chapter-10: Wave Optics : Wave front and Huygens's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygens's principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum(qualitative treatment only).</p> <p style="text-align: center;">Unit VII: Dual Nature of Radiation and Matter Chapter-11</p> <p>Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Matter waves-wave nature of particles, de-Broglie relation,</p>
OCTOBER	<p style="text-align: center;">Unit VIII: Atoms and Nuclei Chapter-12: Atoms</p> <p>Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.</p> <p style="text-align: center;">Chapter-13: Nuclei</p> <p>Composition and size of nucleus, Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.</p> <p style="text-align: center;">Unit IX: Electronic devices Chapter-14: Semiconductor Electronics: Materials, Devices and Simple Circuits:</p> <p>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</p>
NOVEMBER DECEMBER	<p style="text-align: center;">PRE-BOARD I BOARD PRACTICAL WORK REVISION FOR BOARD EXAMS</p>
JANUARY	<p style="text-align: center;">PRE-BOARD II</p>

CHEMISTRY

Month	Unit Name	Periods Marks of unit	
March April	<ul style="list-style-type: none"> ➤ Solution ➤ Electrochemistry ➤ Chemical kinetics 	15 18 15	7 9 7
May	Quarterly Exam		
May	<ul style="list-style-type: none"> ➤ D and F block elements ➤ Revision of all the above chapters 	18	7
July	<ul style="list-style-type: none"> ➤ Co-ordination compounds PART-2 <ul style="list-style-type: none"> ➤ Haloalkanes and haloarenes ➤ Alcohol, phenol and ether 	18 15 14	7
August	<ul style="list-style-type: none"> ➤ Aldehyde, ketone and carboxylic acid ➤ Amines-N containing compounds ➤ Biomolecules ➤ REVISION OF HALF YEARLY EXAMINATION 	15 14 18	8 6 7
September	Half Yearly Exams		
October	Pre Board 1st		
November	Practical work-revision <ul style="list-style-type: none"> ➤ volumetric analysis ➤ Salt analysis ➤ Revision of content based Experiments ➤ File work 	35	26 4=30
December	<ul style="list-style-type: none"> ➤ Revision: For Board Exams ➤ File and Project Work 		
January	Pre Board 2nd		
February	Revision + File work + Project work + Lab Visit + Board Practical		

BIOLOGY

S. NO.	Month	Chapter No.	Chapter Name	Activity
1	March	1	Sexual Reproduction in flowering plants	With the help of some pictures identify the different mode of reproduction
		2	Human Reproduction	To perform flower dissection and explain their parts
2	April	2	Human Reproduction	Class test
		2	Human Reproduction	Monocotyledon & Dicotyledon seeds with the help of germinate seeds
		3	Reproductive health	To study of pollen germination in flowers
		3	Reproductive health	
3	May	4	Principle of inheritance & variation	
		QUATERLY EXAMINATION & REVISION		
		4	Principle of inheritance & variation	To demonstrate the pedigree analysis of Mendelian disorders
4	July	5	Molecular basics of inheritance	Experiment of DNA isolation by any plant material
		5	Molecular basics of inheritance	Class test
		6	Evolution	Worksheet Assignment
		7	Human health and disease	Class test
5	August	8	Microbes in human welfare	Worksheet Assignment
		9	Biotechnology: principles and process	Class test
		10	Biotechnology and its Application	Worksheet Assignment
		11	Organisms and Population	Demonstrate the different tools of biotechnology
6	September	HALF YEARLY EXAMINATION		
7	October	12	Ecosystem	Worksheet Assignment
		13	Biodiversity and conservation	Class test

		FIRST PREBOARD EXAMINATION
8	November	REVISION & CLASS TEST
9	December	REVISION
10	JANUARY	SECOND PREBOARD EXAMINATION

Computer Science (Python 083)

Month	Unit Name	Periods	
		Theory	Practical
March April	<ul style="list-style-type: none"> ➤ Database Management System ➤ Functions in Python ➤ MySQL and Interface with Python 	50	30
May	Quarterly Exam		
May	<ul style="list-style-type: none"> ➤ Revision Tour XI- Part1 ➤ Revision Tour XI- Part2 	40	30
July	Computational Thinking and Programming – 2 <ul style="list-style-type: none"> ➤ Exception Handling ➤ Object Oriented Programming in PYTHON ➤ File Handling in PYTHON 	50	45
August	<ul style="list-style-type: none"> ➤ Text File in PYTHON ➤ Binary File in PYTHON ➤ Comma Separated Values in PYTHON ➤ Data Structure 	50	30
September	Half Yearly Exams		
October	Pre Board 1st		
November	<ul style="list-style-type: none"> ➤ Computer Networks ➤ Cyber Safety, Law and Ethics-2 	35	20
December	<ul style="list-style-type: none"> ➤ Revision: For Board Exams ➤ File and Project Work 		
January	Pre Board 2nd		
February	Revision + File work + Project work + Lab Visit + Board Practical		

PHYSICAL EDUCATION

MARCH	<p>Unit I Management of sporting events. Meaning & function Of Sports events management (planning, organizing, staffing, directing and controlling)</p> <ul style="list-style-type: none">• Various Committees & its Responsibilities (pre; during & post)• Tournament – Knock-Out, League Or Round Robin & Combination• Procedure To Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)• Intramural & Extramural – Meaning, Objectives & Its Significance• Community sports- purpose and benefits.
APRIL	<p>Unit II Children & Women in Sports</p> <ul style="list-style-type: none">• Common Postural Deformities - Knock Knee; Bow Legs; Flat Foot; Round Shoulders; Lordosis, Kyphosis, and Scoliosis and their corrective measures• Special consideration (Menarche & Menstrual Dysfunction)• Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders) <p>Unit III Yoga as Preventive measure for Lifestyle Disease</p> <ul style="list-style-type: none">• Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha – Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.• Diabetes: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana, Bhujangasana, Shalabhasana, Dhanurasana, Supta-vajarasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.• Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalabhati, Gomukhasana Matsyaasana, Anuloma-Viloma.

	<ul style="list-style-type: none"> • Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana, UttanMandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadi-shodhanapranayam, Sitlipranayam.
MAY	QUARTERLY EXAM
MAY	<p>Unit IV Physical Education & Sports for CWSN (Children with Special Needs - <i>Divyang</i>)</p> <ul style="list-style-type: none"> • Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics) • Advantages of Physical Activities for children with special needs. • Strategies to make Physical Activities assessable for children with special needs.
JULY	<p>Unit V Sports & Nutrition</p> <ul style="list-style-type: none"> • Concept of balance diet and nutrition • Macro and Micro Nutrients: Food sources & functions • Nutritive & Non-Nutritive Components of Diet <p>Unit VI Test & Measurement in Sports</p> <ul style="list-style-type: none"> • Fitness Test – SAI Khelo India Fitness Test in school: <ul style="list-style-type: none"> ○ Age group 5-8 yrs/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test ○ Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls). • Computing Basal Metabolic Rate (BMR) • Rikli & Jones - Senior Citizen Fitness Test <ol style="list-style-type: none"> Chair Stand Test for lower body strength Arm Curl Test for upper body strength Chair Sit & Reach Test for lower body flexibility Back Scratch Test for upper body flexibility Eight Foot Up & Go Test for agility Six Minute Walk Test for Aerobic Endurance

<p>AUGUST</p>	<p>Unit VI Test & Measurement in Sports</p> <ul style="list-style-type: none"> ● Measurement of Cardio Vascular Fitness – Harvard Step Test/Rockport Test - Computation of Fitness Index: <u>Duration of the Exercise in Seconds x 100 X 5.5 x Pulse count of 1-1.5 Min after Exercise</u> ● Johnson- Metheny test of motor educability (Front roll, back roll, jumping half turn, jumping full turn)
<p>SEPTEMBER</p>	<p>Half yearly examination</p> <p>Unit VII Physiology & Injuries in Sports</p> <ul style="list-style-type: none"> ● Physiological factor determining component of Physical Fitness
<p>OCTOBER</p>	<p>PREBOARD I</p>
<p>OCTOBER</p>	<ul style="list-style-type: none"> ● Effect of exercise on Cardio Respiratory System ● Effect of exercise on Muscular System ● Physiological changes due to ageing ● Sports injuries: Classification (Soft Tissue Injuries:(Abrasion, Contusion, Laceration, Incision, Sprain & Strain) Bone & Joint Injuries: (Dislocation, Fractures: Stress Fracture, Green Stick, Communated, Transverse Oblique & Impacted) Causes, Prevention& treatment ● First Aid – Aims & Objectives <p>Unit VIII Biomechanics & Sports</p> <ul style="list-style-type: none"> ● Newton’s Law of Motion & its application in sports ● Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports ● Friction & Sports ● Projectile in Sports

NOVEMBER	<p>Unit IX Psychology & Sports</p> <ul style="list-style-type: none"> ● Personality; its definition & types – Trait & Types (Sheldon & Jung Classification) & Big Five Theory ● Motivation, its type & techniques ● Exercise Adherence; Reasons to Exercise, Benefits of Exercise ● Strategies for Enhancing Adherence to Exercise ● Meaning, Concept & Types of Aggressions in Sports ● Psychological attributes in sports- self-esteem, mental imagery, self-talk, goal setting. <p>Unit X Training in Sports</p> <ul style="list-style-type: none"> ● Strength – Definition, types & methods of improving Strength – Isometric, Isotonic & Isokinetic ● Endurance - Definition, types & methods to develop Endurance – Continuous Training, Interval Training & Fartlek Training ● Speed – Definition, types & methods to develop Speed – Acceleration Run & Pace Run ● Flexibility – Definition, types & methods to improve flexibility ● Coordinative Abilities – Definition & types ● Circuit Training - Introduction & its importance
DECEMBER	REVISION
JANUARY	PREBOARD II

Information Technology (802)

Month	Unit Name	Periods	
		Theory	Practical
April	Part-A Unit 1: Communication Skills-IV Unit 2: Self-Management Skills-IV Part-B Unit-3: Fundamentals of Java Programming	10	05
May	Part-B Unit-3: Fundamentals of Java Programming Part-A Unit 3: ICT Skills-IV	3	6
Quarterly Exams			
July	Part-A Unit 4: Entrepreneurial Skills-IV Part-B Unit-3: Fundamentals of Java Programming Unit -2: Operating Web Based Applications.	10	5
August	Part-B Unit-1: Database Concepts – RDBMS Tool Unit-4: Work Integrated Learning IT- DMA.	11	4
September	Half Yearly Examination		
October	Part-B Unit-4: Work Integrated Learning IT-DMA. Part-A Unit 5: Green Skills-IV	06	02
PRE-BOARD 1ST EXAMS			
November	Revision Work (Sample papers) + Lab Visit	7	8
December	Revision Work + Lab Visit +Project files	7	8
January	Pre-Board 2nd Exams Revision Work + Lab Visit		

YOGA(841)

MONTH	UNIT NAME
April	<p>Part-A</p> <p>Unit-1:Communication Skill-III</p> <ul style="list-style-type: none">a-Introduction of communication.b- Active listening.c-Interview skills.d-Parts of speech. <p>Part-B</p> <p>Unit-1: Introduction to yoga and yogic practices-II</p> <ul style="list-style-type: none">a-Shatkarma meaning,Purpose And their significance In Yoga Sadhana.b-Yogasana- Meaning, Principal, and their health benefits.
May	<p>Part-A</p> <p>Unit- 2 Self-management Skill-I</p> <ul style="list-style-type: none">a- Self Management.b- Motivation. <p>Part-B</p> <p>Unit-B- Introduction to yoga and yogic practices-II</p> <ul style="list-style-type: none">a-Introduction to pranayama and Dhyana and their health benefits.b- Identify Career opportunities in yoga.
	PERIODIC TEST -01
July	<p>Part-A</p> <p>Unit- 3: ICT Skills-III</p> <ul style="list-style-type: none">a-Introduction to spreadsheet application.b- Creating a new worksheet.c- Opening workbook an entire text.

	<p>Part-B</p> <p>Unit-2: Introduction to Yogic texts-II</p> <p>a-Concept of Ahara (diet) according to yogic text.</p> <p>b-Significance of Hatha yoga Practices in health promotion.</p> <p>c-Concept of mental health well-being according to Patanjali Yoga.</p>
August	<p>Part- B</p> <p>Unit-2: Introduction to Yogic texts-II</p> <p>a- Yoga practice of Patanjali yoga.</p> <p>b-Concept of healthy living style in Bhagavad Gita.</p> <p>c-Importance of subjective.Experience in daily yoga practice.</p> <p>Part- A</p> <p>Unit- 3: ICT Skills-III</p> <p>a-Resizing fonts and styles.</p> <p>b-Copying and moving.</p> <p>c- Saving a spreadsheet in various formats.</p>
	PERIODIC TEST -02
September	HALF YEARLY EXAMS
October	<p>Part-A</p> <p>Unit- 4: Entrepreneurial Skill-III</p> <p>a-Meaning of Entrepreneurship.</p> <p>b-Characteristic of intrapreneurship.</p> <p>c- Entrepreneurship- Art and Science.</p> <p>Part-A</p> <p>Unit- 3: Yoga for health promotion-II</p> <p>a- Introduction to First Aid and CPR.</p> <p>b- Yogi Management of Stress and its consequences.</p>
	PRE- BOARD 1st

November	<p>Part-B</p> <p>Unit-3: Yoga for health promotion-II</p> <p>a-Yogi prevention.Of common disease.</p> <p>Part-A</p> <p>Unit-4:Entrepreneurial Skill-III</p> <p>a-Qualities of an entrepreneur.</p> <p>b- Types of entrepreneurs.</p> <p>c-Roles and functions of an entrepreneur.</p>
December	<p>Part-A</p> <p>Unit-5: Green skills</p> <p>a-Introduction to Green jobs.</p> <p>b- Benefits of green jobs?</p> <p>Part-B</p> <p>Unit-3: Yoga for health promotion-II</p> <p>a- Yoga and personality development.</p>
January	<p>Practical File/ project work</p> <p>Revision Work/ Practical demo</p>
	<p>PRE- BOARD 2nd</p>