

AIR FORCE SCHOOL BAGDOGRA
Split-Up Syllabus 2022-23
Class-XII English

Month	Syllabus to be Covered		No. of Periods	No. of Working Days
	Textbook/Section	Lessons/Topic/Activity		
April	Flamingo Reading Skill	My Mother At Sixty Six	2	2
		Elementary School Classroom In Slum	3	3
		Note Making and Summary	3	3
	Vistas	Evans Tries An O Level	4	4
	Writing Skill	Notice Writing	2	2
May	Writing Skill	Invitation and Replies	3	3
	Vistas	The Enemy	4	4
June	Flamingo	The Last Lesson A Thing of Beauty	4 3	4 3
	Reading	Reading Comprehension Passages	2	2
July	Flamingo	Lost Spring	4	4
		Deep water Keeping Quiet	4 3	4 3
	Vistas	The Tiger King	4	4
		Should wizard Hit Mommy	4	4
	Writing Skill	Letter To The Editor	2	2
		Business Letters (letter of Enquire,Quotation,placing Order,Complain and letter of Cancellation)	3	3
August	Flamingo	Indigo	4	4
		Roadside Stand	3	3
		The Rattrap	4	4
	Vistas	On The Face Of It	4	4
	Writing Skill	Article Writing	2	2
		Report Writing	2	2
Septembe	Flamingo	Poets and PanCake	4	4

r		Aunt Jennifer's Tigers	2	2
	Vistas	The Third Level	4	4
	Writing Skill	Job Applications	3	3
		Debate Writing	3	3
		Speech Writing	2	2
October	Vistas	Journey to the End Of the Earth	4	4
	Flamingo	The Interview	3	3
		Going Places	4	4
	Reading Skill	Notemaking & Summarizing	2	2
	Writing Skill	Poster Designing	2	2
November	Reading Skill	Reading Comprehension	2	2
	Vistas	Memories of Childhood	4	4
	Practice of Listening & Speaking Skills (ASL) & Revision for Pre-Board-1 Exams		17	17
December	Revision for Pre-Board-2 Exams		9	9
Jan-Feb	Assessment of Listening & Speaking Skills (ASL) & Revision for AISSCE-2020		19	19

AIR FORCE SCHOOL , BAGDOGRA
SPLIT UP SYLLABUS 2022-2023
CLASS XII SUB: PHYSICS(042)

MONTH	NO. OF PERIODS	CHAPTER/TOPICS TO BE COVERED
AUG	12	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. 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.

AUG	11	Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarisation, 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. 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, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity. Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.
SEPT	18	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 and toroidal solenoids, Force on a moving charge in uniform magnetic and electric fields. Cyclotron. 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; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.
SEPT & OCT	7+6=13	Chapter-5: Magnetism and Matter Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. 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; bar magnet as an equivalent solenoid, magnetic field lines; Earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets. Chapter-6: Electromagnetic Induction Electromagnetic induction; Faraday's laws, induced emf and current; Lenz's Law, Eddy currents. Self and mutual induction.

		Chapter-7: Alternating Current Alternating currents, peak and rms value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattless current. AC generator and transformer.
OCT	10	Chapter-9: Ray Optics and Optical Instruments Ray Optics:: Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula. Magnification, power of a lens, combination of thin lenses in contact combination of a lens and a mirror. Refraction and dispersion of light through a prism. Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

NOV	23	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, coherent sources and sustained interference of light. Diffraction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarised light Brewster's law, uses of plane polarised light and Polaroids. 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. Matter waves-wave nature of particles, de Broglie relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained). Chapter-12: Atoms Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Chapter-13: Nuclei Composition and size of nucleus, atomic masses, isotopes, isobars; isotones. Radioactivity alpha, beta and gamma particles/rays and their properties; radioactive decay law.
DEC	17	Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion. Chapter-14: Semiconductor Electronics: Materials, Devices and Simple Circuits Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, zener diode as a voltage regulator. Chapter-8: Electromagnetic Waves 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.
JAN' 21		Revision
FEB'21		PRE- Board EXAM

AIRFORCE SCHOOL BAGDOGRA
SPLIT-UP SYLLABUS

SESSION 2022-23

CLASS :XII SUBJECT-CHEMISTRY(043)

Month	Unit	Title	Tentative no of Periods	Maximum Marks
April-May	10	Haloalkanes and Haloarenes	10	28
June	11	Alcohols, Phenols and Ethers	10	
June	12	Alcohols, Phenols and Ethers	10	
June	13	Amines	10	
July	14	Biomolecules	12	
July	15	Polymers	08	
July	16	Chemistry in Everyday Life	06	
August	01	Solid State	10	23
August	02	Solutions	10	
August	03	Electrochemistry	10	
September	04	Chemical Kinetics	10	
September	05	Surface Chemistry	08	
September	06	General Principles and Processes of Isolation of Elements	08	19
October	07	p -Block Elements	12	
October	08	d -and f -Block Elements	12	
October	09	Coordination Compounds	12	
		Total	160	70

***Project work will be given in the months of July- October.

AIR FORCE SCHOOL BAGDOGRA
SPLIT UP SYLLABUS
SUBJECT: COMPUTER SCIENCE (083)
CLASS XII SUBJECT TEACHER: SUSREETI SUR THEORY MARKS

MONTH	UNIT	SPLIT UP SYLLABUS	LEARNING OUTCOMES
<u>APRIL</u> <u>TO</u> <u>MAY</u>	<u>1</u>	Computational Thinking and Programming - 2 • Revision of the basics of Python covered in Class XI. • Functions: scope, parameter passing, mutable/immutable properties of data objects, passing strings, lists, tuples, dictionaries to functions, default parameters, positional parameters, return values, functions using libraries: mathematical and string functions. • File handling: Need for a data file, Types of file: Text files, Binary files and CSV (Comma separated values) files. • Text File: Basic operations on a text file: Open (filename – absolute or relative path, mode) / Close a text file, Reading and Manipulation of data from a text file, Appending data into a text file, standard input / output and error streams, relative and absolute paths. • Binary File: Basic operations on a binary file: Open (filename – absolute or relative path, mode) / Close a binary file, Pickle Module – methods load and dump; Read, Write/Create, Search, Append and Update operations in a binary file.	Students will revise about the logical part of python programming completed in class XI Students will learn about the anatomy and implementation of function. Students will learn about how to implement file handling feature in python program.

<u>JUNE</u> <u>TO</u> <u>JULY</u>	<u>1</u>	• CSV File: Import csv module, functions – Open / Close a csv file, Read from a csv file and Write into a csv file using csv.reader () and csv.writerow(). • Using Python libraries: create and import Python libraries. • Recursion: simple algorithms with recursion: print a message forever, sum of first n natural numbers, factorial, Fibonacci numbers; recursion on arrays: binary search. • Idea of efficiency: performance measurement in terms of the number of operations. • Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list, Queues – Insert, Delete using a list.	Students will learn about how to implement file handling feature in python program. Students will learn about inbuilt functions and recursive functions. Students will learn about various data structures.
<u>AUGUST</u>	<u>2</u>	Computer Networks • Evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching). • Data Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).	Students will learn about the data networking and communication technology.

<u>AUGUST</u>	<u>2</u> <u>2</u>	● Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link. ● Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card. ● Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN. ● Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile Communication protocol such as GSM, GPRS and WLL. ● Mobile Telecommunication Technologies: 1G, 2G, 3G, 4G and 5G; Mobile processors; Electronic mail protocols such as SMTP, POP3, Protocols for Chat and Video Conferencing: VoIP, Wireless technologies such as Wi Fi and WiMax ● Network Security Concepts: Threats and prevention from Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking. ● Introduction To Web	Students will learn about various devices, protocols, topologies used in data transmission. Students will acquire knowledge about various threats on internet technologies and be aware of cyber security laws. Students will learn about the various scripting languages
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		services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer	
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		Protocol (HTTP); Domain Names; URL; Website, Web browser, Web Servers; Web Hosting, Web Scripting – Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking) • E-commerce payment transactions using online banking, mobile banking, payment apps and services.2	
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<u>SEPTEMBER</u>	<u>3</u>	Database Management Database Concepts: Introduction to database concepts and its need. Relational data model: Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key; Structured Query Language: General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language; Data Types: number / decimal, character / varchar / varchar2, date;	Students will learn about various constraints of database management system
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<u>OCTOBER</u> <u>TO</u> <u>NOVEMBER</u>	<u>3</u>	SQL commands: CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATESET...., INSERT, DELETE; SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL, ORDER BY,GROUP BY, HAVING; SQL functions: SUM (), AVG (), COUNT (), MAX () and MIN ();	Students will learn structured query language for database programming. Students will learn structured query language
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		Joins: equi-join and natural join Interface of Python with an SQL database - Connecting SQL with Python - Creating Database connectivity Applications - Performing Insert, Update, Delete queries - Display data by using fetchone(),fetchall(),rowcount	for multiple tables.
<u>DECEMBER</u>		REVISION WORK	Solution of sample papers

AIR FORCE SCHOOL, BAGDOGRA
SPLIT UP SYLLABUS
SESSION – 2022-23
CLASS – XII (PHYSICAL EDUCATION)

S. NO	CHAPTER	MONTHS
1	Planning in Sports	APRIL
2	Sports & Nutrition	APRIL & MAY
3	Yoga and Lifestyle	JUNE
4	Physical Education & Sports for CWSN	JULY
5	Children & Women in Sports & Practical	JULY
6	Test, Measurement in Sports & Practical	AUGUST
7	Physiology and Injuries in Sports	AUGUST
8	Biomechanics & Sports & Practical	SEPTEMBER
9	Psychology & Sports	SEPTEMBER
10	Training in Sports	OCTOBER
11	Revision (Theory & Practical)	OCTOBER & NOVEMBE R

AIRFORCE SCHOOL BAGDOGRA
SPLIT UP SYLLABUS
SUBJECT: INFORMATIC PRACTICES (065)
CLASS XII SUBJECT TEACHER: SUSREETI SUR

MONTH	UNIT	SPLIT UP SYLLABUS	LEARNING OUTCOMES
<u>APRIL</u> <u>TO</u> <u>MAY</u> <u>JUNE</u>	<u>1</u>	<u>Data Handling using Pandas and Data Visualization</u> <u>Data Handling using Pandas –I</u> Data structures in Pandas - Series and Data Frames. Series: Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing. Data Frames: creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing; Joining, Merging and Concatenation. Importing/Exporting Data between CSV files and Data Frames. <u>Data handling using Pandas – II</u> Descriptive Statistics: max, min, count, sum, mean, median, mode, quartile, Standard deviation, variance. DataFrame operations: Aggregation, group by, Sorting, Deleting and Renaming Index, Pivoting. Handling missing values –	Students will learn about all types of inbuilt functions of PANDA library and will learn to declare their syntax. Students will learn to create series, dataframe and their various operations. Students will learn about all types of inbuilt aggregate functions of PANDA library and will learn to declare their syntax.

		dropping and filling.	
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<u>JULY TO AUGUST</u>	<u>1</u>	<u>Data handling using Pandas – II</u> Importing/Exporting Data between MySQL database and Pandas. Data Visualization Purpose of plotting; drawing and saving following types of plots using Matplotlib – line plot, bar graph, histogram, pie chart, frequency polygon, box plot and scatter plot. Customizing plots: color, style (dashed, dotted), width; adding label, title, and legend in plots.	Students will learn about the connection of database with front end python program. Students will learn about the implementation of data visualization operations.
<u>SEPTEMBER</u>	<u>2</u>	<u>Database Query using SQL</u> Math functions: POWER (), ROUND (), MOD (). Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME ().	Students will learn about various inbuilt functions of SQL

<u>OCTOBER</u>	<u>2</u>	<u>Database Query using SQL</u> Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*). Querying and manipulating data using Group by, Having, Order by. Operations on Relations - Union, Intersection, Minus, Cartesian Product, JOIN	Students will learn about various inbuilt functions of SQL
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<u>NOVEMBER</u>	<u>3</u>	Introduction to Computer Networks Introduction to networks, Types of network: LAN, MAN, WAN. Network Devices: modem, hub, switch, repeater, router, gateway Network Topologies: Star, Bus, Tree, Mesh. Introduction to Internet, URL, WWW and its applications- Web, email, Chat, VoIP. Website: Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website. Web Browsers: Introduction, commonly used browsers, browser	Students will gain knowledge on various computer networking technologies.
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<u>NOVEMBER</u>		Societal Impacts Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act. E-waste: hazards and management. Awareness about health concerns related to the usage of technology.	Students will be aware about various internet threats, cyber security etc.
<u>DECEMBER</u>		REVISION	<u>Sample paper solution</u>

CLASS XII – BIOLOGY SPLIT UP SYLLABUS (2022-23)

No. of working days is counted with the instructions to complete the syllabus by 31st October 2020

S.NO .	UNIT	TITLE	NO. OF PERIODS ALLOTTED	MONTH
1.	VI	REPRODUCTION	30	APRIL-MAY
2.	VII	GENETICS AND EVOLUTION	40	JUNE-JULY
3.	VIII	BIOLOGY IN HUMAN WELFARE	30	AUGUST
4.	IX	BIOTECHNOLOGY	30	SEPTEMBER
5.	X	ECOLOGY AND ENVIRONMENT	30	OCTOBER