Annual Syllabus: 2024-25

Subject: COMPUTER SCIENCE
Class: XI

MONTH	UNIT/CHAPTER/TOPIC
APRIL	Unit I: Computer Systems and Organization (CSO)
	Basic Computer Organisation: Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB)
	Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software
	Operating system (OS): functions of operating system, OS user interface
MAY	Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws andlogic circuits
	Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems.
	Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32)
	Unit 2: Computational Thinking and Programming-1
	Introduction to Problem solving: Introduction to problem solving: Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition.
	Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode
	Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments
	Knowledge of data types: number (integer, floating point, complex), boolean,sequence (string, list, tuple), none, mapping (dictionary), mutable and immutabledata types
JULY	Unit 2 Contd…
	Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in)
	Expressions, statement, type conversion & input/output: precedence of

	operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output
	Errors: syntax errors, logical errors, runtime errors
	Flow of control: introduction, use of indentation, sequential flow, conditional and iterative flow control
	Conditional statements: if, if-else, if-elif-else, flowcharts
	Iterative statements: for loop, range function, while loop, flowcharts, break andcontinue statements, nested loops
AUGUST	**Strings:** introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(),rstrip(), strip(), replace(), join(), partition(), split() **Lists:** introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops,
SEPTEMBER	REVISION, HALF YEARLY EXAM comences, Evaluation
OCTOBER	Built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists **Tuples**: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple
NOVEMBER	**Dictionary:** introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del,clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); **Introduction to Python modules**: Introduction to Python modules: Importing module using 'import <module>' and using from statement,
DECEMBER	Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode) Unit III: Society, Law and Ethics Digital Footprints Digital society and Netizen: net etiquettes, communication etiquettes, social

	media etiquettes Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache) Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime
JANUARY	Cyber safety: safely browsing the web, identity protection, confidentiality, cybertrolls and bullying. Malware: viruses, trojans, adware E-waste management: proper disposal of used electronic gadgets, Indian Information Technology Act (IT Act) Technology & Society: Gender and disability issues while teaching and using computers REVISION
FEBRUARY	ANNUAL EXAMS COMMENCES