SYLLABUS FOR SESSION 2022-23

Class:XI

Subject: Computer Science

TERM-1 SYLLABUS		
MONTH	**CHAPTERS** **(NCERT TEXT BOOK)**	**CONTENT** **(As per Rationalised Syllabus)**
April	UNIT 1:- COMPUTER SYTEM AN ORGANIZATION Ch-1:-: Computer Fundamentals Ch-2: Software Concepts	• 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
May	Ch-3: Data Representation in Computers UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-1: Algorithms and Flowcharts Ch-2:Programming Methodology	• Operating system (OS): functions of operating system, OS user interface • Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits • Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems. • Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32) • 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 immutable data types
		● Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators(is, is not), membership operators(in, not in)
July	UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1(continued)	● 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, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number
		● Iterative statements: for loop, range function, while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc
August	UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1(continued)	● 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, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean

MONTH		
		of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list
September	Chapter-1,2,3	● Revision of ● Truth tables ● Number Conversion ● Selection statements ● Iteration statements ● Strings ● Lists

ASSESSMENT SYLLABUS

PERIODIC ASSESSMENT -1	UNIT 1:- COMPUTER SYTEM AND ORGANIZATION Ch-1:-: Computer Fundamentals Ch-2: Software Concepts Ch-3: Data Representation in Computers UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-1: Algorithms and Flowcharts
TERM-1 EXAM	UNIT 1:- COMPUTER SYTEM AND ORGANIZATION Ch-1:-: Computer Fundamentals Ch-2: Software Concepts Ch-3: Data Representation in Computers UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-1: Algorithms and Flowcharts Ch-2:Programming Methodology(up to lists)

TERM-2 SYLLABUS

MONTH	CHAPTERS (NCERT TEXT BOOK)	CONTENT (As per Rationalised Syllabus)

October	UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-2:Programming Methodology(from 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, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple
November	UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-2:Programming Methodology(from Dictionary) UNIT 3: SOCIETY, LAW AND ETHICS	• Dictionary: introduction, accessing itemsin 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(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them • Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e,sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode) • Digital Footprints • Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes
December	UNIT 3: SOCIETY, LAW AND ETHICS(continued)	• 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 safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying. • Safely accessing web sites: malware, viruses, trojans, adware

January	UNIT 3: SOCIETY, LAW AND ETHICS(continued)	● 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
February	Revision Tests	
March	FINAL EXAMINATION	

ASSESSMENT SYLLABUS

PERIODIC ASSESSMENT -2	UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Ch-2:Programming Methodology(from Tuples) UNIT 3: SOCIETY, LAW AND ETHICS(one 4th of the chapter)
FINAL EXAMINATION	UNIT 1:- COMPUTER SYTEM AND ORGANIZATION Ch-1:-: Computer Fundamentals Ch-2: Software Concepts Ch-3: Data Representation in Computers UNIT 2- COMPUTATIONAL THINKING AND PROGRAMMING-1 Full unit UNIT 3: SOCIETY, LAW AND ETHICS(Full chapter)