COMPUTER SCIENCE (083)
SYLLABUS OF CLASS XI
SESSION : 2022-23

Theory : 70
Practical : 30

Date/Month	Unit	Chapter/Topics
8th Aug to 12th Aug	**Unit II:** Computational Thinking and Programming – 1	Familiarization with the basics of Python programming: a simple "hello world" program, the process of writing a program (Interactive & Script mode), running it and print statements; simple data-types: integer, float and string.
25th Aug to 19th Aug	**Unit II:** Computational Thinking and Programming – 1	Features of Python, Python Character Set, Token & Identifiers, Keywords,Literals, Delimiters, Operators. ● Comments: (Single line & Multiline/ Continuation statements), Clarity & Simplification of expression ● Introduce the notion of a variable and methods to manipulate it (concept of Lvalue andR-value even if not taught explicitly). ● Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence.
22th Aug to 26th Aug	**Unit II:** Computational Thinking and Programming – 1	**Operators & types:** Binary operators-Arithmetic, Relational Operators, Logical Operators, Augmented Assignment Operators. ● Execution of a program, errors- syntax error, run-time error and logical error. ● **Conditional statements:** if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number.
29th Aug to 8th Sep	**Unit II:** Computational Thinking and Programming – 1	Notion of iterative computation and control flow: for(range(),len()), while, using flowcharts, suggested programs: calculation of simple and compound interests, finding the factorial of a positive number etc.
I Written Test		
3rd Oct to 7th Oct	**Unit II:** Computational Thinking and Programming – 1	**Strings:** Traversal, operations – concatenation, repetition, membership; functions/methods–len(), capitalize(), title(), upper(), lower(), count(), find(), index(), isalnum(), islower(), isupper(), isspace(), isalpha(), isdigit(), split(), partition(), strip(), lstrip(), rstrip(), replace(); String slicing.
10th Oct to 21st Oct	**Unit II:** Computational Thinking and Programming – 1	**Lists:** Definition, Creation of a list, Traversal of a list. Operations on a list -concatenation, repetition, membership; functions/methods–len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(),min(), max(), sum(); Lists Slicing; Nested lists; finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list.
24th Oct to 4th Nov	**Unit II:** Computational Thinking and Programming – 1	**Tuples:** Definition, Creation of a Tuple, Traversal of a tuple. Operations on a tuple - concatenation, repetition, membership; functions/methods – len(),

		tuple(), count(), index(), sorted(), min(), max(), sum(); Nested tuple; Tuple slicing; 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.
7th Nov to 11th Nov	**Unit II:** Computational Thinking and Programming – 1	**Dictionary:** Definition, Creation, Accessing elements of a dictionary, add an item, modify an item in a dictionary; Traversal, functions/methods – len(), dict(), keys(), values(), items(), get(), update(), del(), 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.
14th Nov to 18th Nov	**Unit II:** Computational Thinking and Programming – 1	**Introduction to Python modules:** Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode).
21st Nov to 25th Nov	**Unit I:** Computer Systems and Organisation	**Basic computer organisation:** description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery. ● Types of software: Application software, System software and Utility software. ● Memory Units: bit, byte, MB, GB, TB, and PB. ● Boolean logic: NOT, AND, OR, NAND, NOR, XOR, NOT, truth tables and De Morgan's laws, Logic circuits
28th Nov to 2nd Dec	**Unit I:** Computer Systems and Organisation	**Number System:** numbers in base 2, 8, 16 and binary addition. ● **Encoding Schemes :** ASCII, ISCII and Unicode ● Concept of Compiler and Interpreter ● Operating System (OS) - need for an operating system, brief introduction to functions of OS, user interface
Half Yearly Exam 2022-23		
9th Jan to 20th Jan	**Unit III:** Society, Law and Ethics	Cyber safety: safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying. ● Appropriate usage of social networks: spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules. ● Safely accessing web sites: adware, malware, viruses, trojans ● Safely communicating data: secure connections, eavesdropping, phishing and identity verification. ● Intellectual property rights, plagiarism, digital rights management, and licensing(Creative Commons, GPL and Apache), open source, open data, privacy. ● Privacy laws, fraud; cyber-crime- phishing, illegal downloads, child pornography, scams; cyber forensics, IT Act, 2000.
23rd Jan to 31st Jan		● Technology and society: ● understanding of societal issues and cultural changes induced by technology.

		● E-waste management: proper disposal of used electronic gadgets. ● Identity theft, unique ids and biometrics. ● Gender and disability issues while teaching and using computers.