SPLIT-UP SYLLABUS
SUB: COMPUTER SCIENCE (083)
CLASS - XI (NEW SYLLABUS)
SESSION 2020-21

DISTRIBUTION OF MARKS

Unit No.	Unit Name	Theory Marks
I	Computer Systems and Organisation	10
II	Computational Thinking and Programming - 1	45
III	Society, Law and Ethics	15
	Total	70

MONTH- WISE DISTRIBUTION

Month	Topics to be covered	Th.	Pr.
June-July	**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 • 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	10	5
August	**Unit 2: Computational Thinking and Programming** • Introduction to Problem solving: Problem solving cycle - Analysing a problem, designing algorithms and representation of algorithm using flowchart and pseudo-code. • 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. • 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 L-value and R-value even if not taught explicitly). • Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence. • 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.	15	10
September	●Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number. ●Notion of iterative computation and control flow: for(range(),len()), while, using	10	8

	flowcharts, suggested programs: calculation of simple and compound interests, finding the factorial of a positive number etc. ● 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.		
October	**HALF YEARLY EXAMINATION**		
	● 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.	10	7
November	● 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. ● 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.	10	5
December	● 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).	5	5
January	**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. ● 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.	20	
Feb	Revision, Project Work , Session Ending Practical Examination		

PRACTICAL WORK
CLASS – XI : COMPUTER SCIENCE (083)

DISTRIBUTION OF MARKS

S.No.	Area	Marks (Total=30)
1.	**Lab Test (12 marks)** **Python program (60% logic + 20% documentation + 20% code quality)**	**12**
	Report File + Viva (10 marks) **Report file: Minimum 20 Python programs**	**7**
2.	**Viva voce**	**3**
3.	**Project (8 marks)** **(that uses most of the concepts that have been learnt See CS-XII for the rules regarding the projects)**	**8**