

SPLIT-UP SYLLABUS
SUB: COMPUTER SCIENCE (083)
CLASS - XI (NEW SYLLABUS)
SESSION 2019-20

DISTRIBUTION OF MARKS

UNIT	UNIT NAME	MARKS
1	Computer System and Organization	10
2	Programming and Computational Thinking	35
3	Data Management	15
4	Society, Law and Ethics	10
5	Practicals	30
	TOTAL	100

MONTH- WISE DISTRIBUTION

Month	Topics to be covered	Th.	Pr.
June-July	<ul style="list-style-type: none"> • Unit 1: Computer Systems and Organization Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery. • Types of software: application, System, utility. • Memory Units: bit, byte, MB, GB, TB, and PB. • Boolean logic: OR, AND, NAND, NOR, XOR, NOT, truth tables, De Morgan's laws • Information representation: numbers in base 2, 8, 16, binary addition • Strings: ASCII, UTF8, UTF32, ISCII (Indian script code), Unicode • Basic concepts of Flowchart • Concept of Compiler & Interpreter • Running a program: Notion of an operating system, how an operating system runs a program, idea of loading, operating system as a resource manager. • Concept of cloud computing, cloud (public/private), introduction to parallel computing. 	30	25
August	<p>Unit 2: Computational Thinking and Programming</p> <ul style="list-style-type: none"> • Basics of Computational Thinking: Decomposition, Pattern Recognition/ Data representation, Generalization/ Data Abstraction and algorithm. • Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program (Interactive & Script mode), running it, and print statements; simple data-types: integer, float, 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 Lvalue 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. 	25	25
Sept emb	<ul style="list-style-type: none"> • Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers, and divisibility. 	25	20

	<ul style="list-style-type: none"> • Notion of iterative computation and control flow: for(range(),len()), while, flowcharts, suggested programs: interest calculation and factorials, etc. • Idea of debugging: errors and exceptions; debugging: pdb, break points. 		
October	HALF YEARLY EXAMINATION		
	<ul style="list-style-type: none"> • Lists, tuples and dictionary: finding the maximum, minimum, mean; linear search on list/tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names. 	10	06
November	<ul style="list-style-type: none"> • Sorting algorithm: bubble and insertion sort; count the number of operations while sorting. • Strings: Traversing, compare, concat, substring. • Introduction to Python modules: Importing math (sqrt, cell, floor, pow, fabs, sin, cos, tan, random (random, randint, randrange), statistics (mean, median, mode) modules. 	20	10
December	Unit 3: Data Management <ul style="list-style-type: none"> • Relational databases: Concept of a database, relations, attributes and tuples, keys- candidate key, primary key, alternate key, foreign key; Degree and cardinality of a table. • Use SQL – DDL/ DML commands to CREATE TABLE, INSERT INTO, UPDATE TABLE , DELETE FROM, ALTER TABLE, MODIFY TABLE, DROP TABLE, keys, and foreign keys; to view content of a table: SELECT-FROMWHERE-ORDER BY along with BETWEEN, IN, LIKE, (Queries only on single table) • Aggregate functions – MIN,MAX,AVG,COUNT,SUM • Basics of NoSQL databases. 	30	24
January	UNIT 4: Society , Law and Ethics - Cyber Safety <ul style="list-style-type: none"> • 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. 	10	
Feb	Revision, Project Work , Session Ending Practical Examination		

PRACTICAL WORK CLASS – XI : COMPUTER SCIENCE (083)

DISTRIBUTION OF MARKS

S.No.	UNIT NAME	MARKS
1	Lab Test (12 marks)	
	Python programs to test PCT (60% logic + 20% documentation +20% code quality)	8
	SQL program (at least 4 queries)	4
2	Report File + viva (10 marks)	
	Report file: Minimum 20 Python programs (PCT + DH) and at least 8 SQL commands.	7
	Viva voce (based on the report file)	3
3	Project Work (that uses most of the concepts that have been learnt) Project may be allotted to group of 2-3 students.	8