

**SOBTIS PUBLIC SCHOOL****Yearly Lesson Plan****Session 2020-21****Teacher:-Prasoon Johri****Subject: Computer****Class: XI**

<b>Month</b>	<b>No. of working days</b>	<b>No. of periods</b>	<b>Topic</b>
<b>April</b>	<b>21</b>	<b>21</b>	Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program, running it, and print statements; simple data-types: integer, float, string Introduce the notion of a variable, and methods to manipulate it (concept of L-value and Rvalue even if not taught explicitly)• Knowledge of data types and operators: accepting input from the console, assignment• statement, expressions, operators and their precedence. Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3• numbers, and divisibility.
<b>May</b>	<b>16</b>	<b>16</b>	Notion of iterative computation and control flow: for, while, flowcharts, decision trees and pseudo code; write a lot of programs: interest calculation, primarily testing, and factorials. Idea of debugging: errors and exceptions; debugging: pdb, break points.• 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 Sorting algorithm: bubble and insertion sort; count the number of operations while sorting. Strings: compare, concat, substring; notion of states and transitions using state transition diagrams.
<b>July</b>	<b>27</b>	<b>27</b>	Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery, power. Types of software: application, OS, utility, libraries.• Language of Bits: bit, byte, MB, GB, TB, and PB.• Boolean logic: OR, AND, NAND, NOR, XOR, NOT, truth tables, De Morgan's laws•
<b>August</b>	<b>23</b>	<b>23</b>	Information representation: numbers in base 2, 8, 16, unsigned integers, binary addition Strings: ASCII, UTF8, UTF32, ISCII (Indian script code) execution◊ binary ◊ Execution of a program: basic flow of compilation – program • Interpreters (process one line at a time), difference between a compiler and an 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 computers, cloud storage (public/private), and brief introduction to parallel• computing.

<b>September</b>	<b>11</b>	<b>11</b>	Relational databases: idea of a database and the need for it, relations, keys, primary key, foreign key;
<b>October</b>	<b>25</b>	<b>25</b>	use SQL commands to create a table, keys, foreign keys; insert/delete an entry, delete a table. SQL commands: select, project, and join; indexes, and a lot of in-class practice.● Basics of NoSQL databases - Mongo DB●
<b>November</b>	<b>21</b>	<b>21</b>	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.
<b>December</b>	<b>11</b>	<b>11</b>	Safely accessing web sites: adware, malware, viruses, Trojans Safely communicating data: secure connections, eavesdropping, phishing and identity● verification.