**Syllabus : Python**

Duration : 60 hrs (Each Session 1 hour )

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| **Session 1** |
| * Why You Should Learn Programming Language * How You Should Learn Programming Language * Different Types of Software * Different Types of Programming Paradigms * History of Python * Why to learn python * Features of Python |
| **Session 2** |
| * Variable, Identifier & Keywords * Statements & Comments * Indentation * Static Typing vs. Dynamic Typing * Input and output * Data types |
| **Session 3** |
| * Arithmetic operator * Relational Operator * Assignment Operator * Logical operator * Bitwise operator * Membership Operator * Identity Operator * Precedence of operators |
| **Session 4 & 5** |
| * If statement, If – else, If – elif –else, Nested if – else * While loop * for – in loop * Nested loop * Loop with else * Pass statement * Break and continue |
| **Session 6 - 8** |
| * What is Function * Defining function * Calling Function * Return statement * Function parameters * Call by value or call by reference * Local and global variable * Recursion * Anonymous (lambda)function |
| **Session 9 & 10** |
| * Defining module * How to create module * Importing module * Module search path * Reloading a module * Defining package * How to create package * Importing package * Installing third party packages |
| **Session 11-12** |
| * Basic Data Types * Type casting * Defining a string * Different ways to create string * Accessing elements of string * Escape sequence * String formatting Expressions |
| **Session 13-14** |
| * Defining a list * Creating list * Accessing list elements of list * Deleting list * List methods * Functions used with list * List comprehension * Implementation of stack and queue using list * Matrix operations using list * Matrix operations using list comprehension |
| **Session 15** |
| * Defining a Tuple * Creating a Tuple * Accessing elements of Tuple * Immutability * List vs. Tuples * Tuple Methods * Functions used with tuple * Advantage of Tuple |
| **Session 16** |
| * Defining a dictionary * Creating a dictionary * Accessing elements of dictionary * Deleting a dictionary * Dictionary methods * Dictionary Comprehension |
| **Session 17** |
| * Defining a set * Creating set * Set operations * Set methods * Set comprehension |
| **Session 18 & 19** |
| * Types of file * File operations: Opening a File, Closing file, Writing to File, Reading from file * Random access in file * Tell() and seek() * Binary file * Copy binary file * Pickle module |
| **Session 20 & 21** |
| * Defining an exception? * Default exception handler * Exception handling techniques * Detecting Exception (try) * Catching exceptions (catch) * Catching multiple exceptions * Raising exception (raise) * Finally block * User defined exceptions |
| **Session 22-24** |
| * OOPS Concepts * Defining a class, Creating object * Instance attribute vs. class attribute * Instance method vs. class method * Access Specifier * Method Overloading * Constructor * Destructor * Inheritance * Method overriding * Super() * Method resolution order * Operator overloading * Abstract method * Abstract class |
| **Session 25 - 27** |
| * Process based multi tasking * Thread based multi tasking * Creating a Thread without using class * Creating thread using class * Sleep() method, Join() Methods * Getting and setting name of Thread * Is\_Alive() Method * Active\_count() method * Enumerate() method * Current\_thread() method * Synchronization * Lock concept * Acquire() and release() |
| **Session 28 & 30** |
| * Introduction to Tkinter * Creating a window * Tkinter widgets * Label * Button * Entry * Message box * Tkinter widgets * List box * Radio Button * Check Button * Creating Frame * Mini Project |
| **Session 31 – 33** |
| * Introduction to SQLite module * Connecting to database by using sqlite3 * Creating table by sqlite3 * Performing sql operations * Introduction to MySQL * Creating database using MySQL * Connecting MySQL database from python * CURD Operation |
| **Session 34** |
| * Introduction to Network programming * Ip address * Port Number * Socket module * Server socket * Client socket * Socket methods * creating a client server application |
| **Session – 35** |
| * What is machine Learning * Supervised Learning * Unsupervised learning * Why python is suitable for ML * Application of machine learning |
| **Session – 36-40** |
| * Numpy * pandas * sklearn * matplotlib |
| **Session – 41 – 46** |
| * Live Project |