

Python Syllabus		
S.No	Topic	Sub Topic
1	Introduction to Python	Compiler Vs Interpretor
		PIP
		Python
		Features of Python
		Execution of a Python Program
		Flavors of Python
		Python Virtual Machine (PVM)
		Memory Management in Python
		Comparisons between C and Python
		Comparisons between Java and Python
2	Writing Our First Python Program	Writing Our First Python Program
		Executing a Python Program
		Getting Help in Python
		Getting Python Documentation Help
		Reopening the Python Program in IDLE
		Reading User Input and outputting user input (input and different formats of print statement)
3	Datatypes in Python	Comments in Python
		Docstrings
		How Python Sees Variables
		Datatypes in Python
		Built-in datatypes
		bool Datatype
		Sequences in Python
		Sets
		Literals in Python
		Determining the Datatype of a Variable
		What about Characters
		User-defined Datatypes
		Constants in Python
		Identifiers and Reserved words
		Naming Conventions in Python
		Numbers
4	Operators	Operators and Operands
		Types of Operators
		--Arithmetic Operators
		-----Unary Operators
		-----Binary Operators
		--Relational Operators
		--Logical Operators
		--Arithmetic Assignment Operators
		--Bitwise Operators
		Operator precedence
		Identity Operator is and is not
5	Control Statements	Control Statements(Introduction to Selection Statement)
		The if Statement
		A Word on Indentation
		The if ... else Statement
		The if ... elif ... else Statement
		The while Loop
		The for Loop
		Infinite Loops
		Nested Loops
		The else Suite
		The break Statement
		The continue Statement
		The pass Statement
		The assert Statement
		The return Statement
		Designing code for Printing pattern
		Difference between a Function and a Method
		Defining a Function
		Calling a Function
		Returning Results from a Function
		Returning Multiple Values from a Function

6	Functions:	Functions are First Class Objects
		Pass by Object Reference
		Formal and Actual Arguments
		Positional Arguments
		Keyword Arguments
		Default Arguments
		Variable Length Arguments
		Local and Global Variables
		The Global Keyword
		Passing a Group of Elements to a Function
		Recursive Functions
		Built-in functions(Filter, Map,reduce,any,all,zip,etc..)
7	Lambda Function, Decorators and Generators	Anonymous Functions or Lambdas
		Function Decorators
		Generators
		Structured Programming
		Creating our Own Modules in Python
		Property Decorators
		Iterators in Python
8	Strings and Characters:	Creating Strings
		Length of a String
		Indexing in Strings
		Slicing the Strings
		Repeating the Strings
		Concatenation of Strings
		Checking Membership
		Comparing Strings
		Removing Spaces from a String
		Finding Sub Strings
		Counting Substrings in a String
		Strings are Immutable
		Replacing a String with another String
		Splitting and Joining Strings
		Changing Case of a String
		Checking Starting and Ending of a String
		String Testing Methods
		Formatting the Strings
		Working with Characters
		Sorting Strings
9	Lists and Tuples	Searching in the Strings
		Finding Number of Characters and Words
		Inserting Sub String into a String
		List
		Creating Lists using range() Function
		Updating the Elements of a List
		Concatenation of Two Lists
		Repetition of Lists
		Membership in Lists
		Aliasing and Cloning Lists
		Methods to Process Lists
		Finding Biggest and Smallest Elements in a List
		Sorting the List Elements
		Number of Occurrences of an Element in the List
		Finding Common Elements in Two Lists
		Storing Different Types of Data in a List
		Nested Lists
		Nested Lists as Matrices
		List Comprehensions
		Tuples
		Creating Tuples
		Accessing the Tuple Elements
		Basic Operations on Tuples
		Functions to Process Tuples
		Nested Tuples
		Inserting Elements in a Tuple
		Modifying Elements of a Tuple
		Deleting Elements from a Tuple

		List Comprehensions- Discussing List Comprehension How Tasks are Simplified Examples for Better Understanding Split( ) Tuple comprehensions-Tuple Comprehensions Tuple Methods Index Method Count Method
10	Sets	introduction to set Internal working of sets Set in Mathematics Set methods-Union,intersection,difference Set methods-Adding and Deletion-> add(),copy(),update(),pop(),discard(),remove(),clear() Set Comprehensions
11	. Dictionaries	Operations on Dictionaries Dictionary Methods(Adding and Removing Methods on Dictionary,Adding : copy( ), update(iterable), setdefault(key, default) fromkeys(sequence, value),Removing : pop( key, default ) , pop item( ) , clear( )) Using for Loop with Dictionaries Sorting the Elements of a Dictionary using Lambdas Converting Lists into Dictionary Converting Strings into Dictionary Passing Dictionaries to Functions Ordered Dictionaries
12	Oops	Oops concepts and features --Class and Object Encapsulation ( Get & Set) Abstraction Data Hiding --Polymorphism --Inheritance Data Hiding Creating a Class The Self Variable Constructor Namespaces Passing Members of One Class to Another Class Inner Classes Instance variable & Methods, Class Variable & Methods
13	Inheritance and Polymorphism	Constructors in Inheritance Overriding Super Class Constructors and Methods The super() Method Types of Inheritance Method Resolution Order (MRO) Polymorphism Duck Typing Philosophy of Python Operator Overloading Method Overloading Method Overriding
14	Module & Packages	working with import statement Modules and Packages in Python Working with regular expressions Working with random numbers Working with dates modules Working with JSON files Working with CSV files,excel files Working with OS module commands OS modules ,glob modules etc
15	Exceptions	Errors in a Python Program Exceptions Exception Handling Types of Exceptions The Except Block( Use of try except & finally) The assert Statement User-Defined Exceptions
		Open a file, Reading , writing & Closing of a File Working with creation of temp files Working with Text Files Containing Strings

16	Files in Python	Knowing Whether a File Exists or Not
		Working with Binary Files
		The with Statement
		Pickle in Python
		The seek() and tell() Methods
		Working with Directories
17	Regular Expressions in Python	Sequence Characters in Regular Expressions
		Quantifiers in Regular Expressions
		Special Characters in Regular Expressions
		Using Regular Expressions on Files
18	Advanced Python Libraries	Overview of Numpy
		Overview of Pandas
19	Visualisation Libraries	Overview of matplotlib
		Overview of Seaborn