Python Syllabus

# Main Content

# Module 1: Introduction to Python

* What is Python and history of Python?
* Unique features of Python
* Python-2 and Python-3 differences
* Install Python and Environment Setup
* First Python Program
* Python Identifiers, Keywords and Indentation
* Comments and document interlude in Python
* Command line arguments
* Getting User Input
* Python Data Types
* What are variables?
* Python Core objects and Functions
* Number and Maths

# Module 2: Control Statements

* if-else
* if-elif-else
* while loop
* for loop
* break
* continue
* assert
* pass
* return

# Module 3: List, Ranges & Tuples in Python

* Introduction
* Lists in Python
* More about Lists
* Understanding Iterators
* Generators, Comprehensions and Lambda Expressions
* - Introduction
* - Generators and Yield
* - Next and Ranges
* Understanding and using Ranges
* More About Ranges
* Ordered Sets with tuples

# Module 4: Python Dictionaries and Sets

* Introduction to the section
* Python Dictionaries
* More on Dictionaries
* Sets
* Python Sets Examples

# Module 5: Input and Output in Python

* Reading and writing text files
* Writing Text Files
* Appending to Files and Challenge
* Writing Binary Files Manually
* Using Pickle to Write Binary Files

# Module 6: Python built in function

* Python user defined functions
* Python packages functions
* Defining and calling Function
* The anonymous Functions
* Loops and statement in Python
* Python Modules & Packages

# Module 7: Python Object Oriented

* Overview of OOP
* The self variable
* Constructor
* Types Of Variables
* Namespaces
* Creating Classes and Objects
* Inheritance
* Types of Methods
* - Instance Methods
* - Static Methods
* - Class Methods
* Accessing attributes
* Built-In Class Attributes
* Destroying Objects
* Abstract classes and Interfaces
* Abstract Methods and Abstract class
* Interface in Python
* Abstract classes and Interfaces

# Module 8: Exceptions

* Errors in Python
* Compile-Time Errors
* Runtime Errors
* Logical Errors
* What is Exception?
* Handling an exception
* try….except…else
* try-finally clause
* Argument of an Exception
* Python Standard Exceptions
* Raising an exceptions
* User-Defined Exceptions

Additional things you can prepare

# Module 9: Python Regular Expressions

* What are regular expressions?
* The match Function
* The search Function
* Matching vs searching
* Search and Replace
* Extended Regular Expressions
* Wildcard

# Module 10: Python Multithreaded Programming

* What is multithreading?
* Difference between a Process and Thread
* Concurrent Programming and GIL
* Uses of Thread
* Starting a New Thread
* The Threading Module
* Thread Synchronization
* - Locks
* - Semaphore
* Deadlock of Threads
* Avoiding Deadlocks
* Daemon Threads

# Module 11: Using Databases in Python

* Python MySQL Database Access
* Install the MySQLdb and other Packages
* Create Database Connection
* CREATE, INSERT, READ Operation
* DML and DDL Operation with Databases

# Module 12: Data Science Using Python

* Numpy:
* - Introduction to numpy
* - Creating arrays
* - Indexing Arrays
* - Array Transposition
* - Universal Array Function
* - Array Processing
* - Array Input and Output
* Pandas:
* - What are pandas?
* - Where it is used?
* - Series in pandas
* - Index objects
* - Reindex
* - Drop Entry
* - Selecting Entries
* - Data Alignment
* - Rank and Sort
* - Summary Statics
* - Index Hierarchy
* Matplotlib: Data Visualization
* - Python for Data Visualization
* - Welcome to the Data Visualization Section
* - Introduction to Matplotlib