

# Python Syllabus

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## *Module 1:*

### *Introduction and Motivation, HelloWorld To Variable , List And Tuple*

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- Getting Started with Python
  - Introducing Python
  - Installing Python on Windows
  - Introducing Python IDLE
  - Programming in Interactive Mode
  - Programming in Scripting Mode
  - Types, Variables and Input/Output
  - Using quotes and escape character
  - String Concatenation and Repeater Operators
  - Using Mathematical Operators with Numbers
  - Understanding Variables
  - Getting User Input with input()
  - Using Strings Methods
  - Converting Values
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## *Module 2:*

### *List Comprehension, Conditional Statement, Loops*

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- Flow Control in Python
- Avoiding infinite loops
- Using Logical Operators
- The else Clause
- The while Statement
- Values as conditions
- Planning Your Program with
- Pseudocode
- For Loops with Tuples
- Using Sequence Operators and Functions with Strings
- Finding Length with len()

- Using the in Operator
- Indexing and Slicing Strings
- Using Random Module

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### *Module 3:*

#### *Sequence Operators and Functions with Tuples*

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- Dictionaries
- Accessing Dictionary values
- Adding, Replacing and Deleting key-value pairs
- Functions: get(), keys(), values() and items()
- Lists in Python
- Creating and Using Lists
- Indexing, Slicing and Concatenating
- Deleting List Element with del
- Using Lists Methods such as append(), sort(), reverse(), count(), pop(), remove(), insert() and index()
- Using Nested Sequence
- Understanding Shared References
- Functions in Python
- Defining Functions
- Using Parameters and Return Values
- Using Arguments and Defaults Parameters
- Using Global Variables and Constants
- Variable Scope
- References

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### *Module 4:*

#### *Object-Oriented Python*

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- Introduction to Object-Oriented Python
- Creating Classes, Methods and Objects
- Using Constructor and Attributes
- Using Class Attributes and Static Methods
- Understanding Object Encapsulation

- Private Attributes and Methods
- Controlling Attribute Access
- Creating and Accessing Properties
- Using Inheritance to Create New Classes
- Altering Behavior of Inherited Method
- Understanding Polymorphism

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### *Module 5:*

#### *File Operation*

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- File Input and Output and Exceptions
- Input from Text Files
- Storing Complex Data in Files with Pickles and Shelve

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### *Module 6:*

#### *Exception Handling and Module Programing*

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- Handling Exceptions
- Using try Statement with except Clause
- Modules
- Using Modules in Programs
- Using Imported Functions and Modules