



**VISTAR INSTITUTE OF COMPUTER SCIENCE**  
**EKTA CHOWK VIJAY NAGAR JABALPUR**  
**REGISTRATION NO:04/14/20522/19**

# **Vistar Institute**

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### **Language**

### **Courses**

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Vistar Institute

# Python Syllabus

- Python Training Overview

- > What are the Python Course Pre-requisites
- > Objectives of the Course
- > Who should do the course
- > Python Training Course Duration

- Python Course Content

- > Core Python
- > Introduction to Script
- > Introduction to Python
- > Different Modes in PYTHON
- > Variables in Python
- > String Handling
- > Python Operators and Operands
- > Python Conditional Statements
- > Python LOOPS
- > Learning Python Strings
- > Core Python
- > Sequence or Collections in PYTHON
- > Python Lists
- > Python TUPLE
- > Python Sets
- > Python Dictionary
- > Python Functions
- > Advanced Python
- > Python Modules
- > Packages in Python
- > Python Date and Time
- > File Handling

- > Python OS Module
- > Python Exception Handling
- > More Advanced PYTHON
- > Python Class and Objects
- > Python Regular Expressions
- > Python XML Parser
- > Python-Data Base Communication
- > Multi-Threading
- > Web Scrapping
- > Unit Testing with PyUnit
- > Introduction to Python Web Frameworks
- > GUI Programming-Tkinter
- > Data Analytics
- > Introduction to Machine Learning with PYTHON
- > Data Science
- > Internet of Things
- > share training and course content with friends and students:

## Core Python

- Introduction to Script

- > What is Script, program?
- > Types of Scripts
- > Difference between Script and Programming Languages
- > Features and Limitation of Scripting
- > Types of programming Language Paradigms

### Introduction to Python

- > What is Python?
- > Why Python?
- > Who Uses Python?
- > Characteristics of Python
- > History of Python
- > What is PSF?
- > Python Versions
- > How to Download and Install Python
- > Install Python with Diff IDEs
- > Features and Limitations of Python
- > Python Applications
- > Creating Your First Python Program
- > Printing to the Screen
- > Reading Keyboard Input
- > Using Command Prompt and GUI or IDE
- > Python Distributions

- Different Modes in PYTHON

- > Execute the Script
- > Interactive and Script Mode

- > Python File Extensions
- > SETTING PATH IN Windows
- > Clear screen inside python
- > Learn Python Main Function
- > Python Comments
- > Quit the Python Shell
- > Shell as a Simple Calculator
- > Order of operations
- > Multiline Statements
- > Quotations in Python
- > Python Path Testing
- > Joining two lines
- > Python Implementation Alternatives
- > Sub Packages in Python
- > Uses of Python in Data Science, IoT
- > Working with Python in Unix/Linux/Windows/Mac/Android..!!

## • PYTHON NEW IDEs

- > PyCharm IDE
- > How to Work on PyCharm
- > PyCharm Components
- > Debugging process in PyCharm
- > PYTHON Install Anaconda
- > What is Anaconda?
- > Coding Environments
- > Spyder Components
- > General Spyder Features
- > Spyder Shortcut Keys
- > Jupyter Notebook

- > What is Conda? and Conda List?
- > Jupyter and Kernels
- > What is PIP?

## Variables in Python

- > What is Variable?
  - > Variables and Constants in Python
  - > Variable, Variable names and Value
  - > Mnemonic Variable Names
  - > Values and Types
  - > What Does “Type” Mean?
  - > Multiple Assignment
  - > Python different numerical types
  - > Standard Data Types
  - > Operators and Operands
  - > Order of Operations
  - > Swap variables
  - > Python Mathematics
  - > Type Conversion
  - > Mutable Versus Immutable Objects
- String Handling
    - > What is string?
    - > String operations and indices
    - > Basic String Operations
    - > String Functions, Methods
    - > Delete a string
    - > String Multiplication and concatenation
    - > Python Keywords, Identifiers and Literals

- > String Formatting Operator
- > Structuring with indentation in Python
- > Built-in String Methods
- > Define Data Structure?
- > Data Structures in PYTHON
  
- Python Operators and Operands
  - > Arithmetic, Relational Operators and Comparison Operators
  - > Python Assignment Operators
  - > Short hand Assignment Operators
  - > Logical Operators or Bitwise Operators
  - > Membership Operators
  - > Identity Operators
  - > Operator precedence
  - > Evaluating Expressions
  
- Python Conditional Statements
  - > How to use “if condition” in conditional structures
  - > if statement (One-Way Decisions)
  - > if .. else statement (Two-way Decisions)
  - > How to use “else condition”
  - > if .. elif .. else statement (Multi-way)
  - > When “else condition” does not work
  - > How to use “elif” condition
  - > How to execute conditional statement with minimal code
  - > Nested IF Statement

- Python LOOPS

- > How to use “While Loop” and “For Loop”
- > How to use For Loop for set of other things besides numbers
- > Break statements, Continue statement, Enumerate function for For Loop
- > Practical Example
- > How to use for loop to repeat the same statement over and again
- > Break, continue statements

- Learning Python Strings

- > Accessing Values in Strings
- > Various String Operators
- > Some more examples
- > Python String replace() Method
- > Changing upper and lower case strings
- > Using “join” function for the string
- > Reversing String
- > Split Strings

- Sequence or Collections in PYTHON

- > Strings
- > Unicode Strings
- > Lists
- > Tuples
- > buffers
- > xrange

- Python Lists

- > Lists are mutable
- > Getting to Lists



- > List indices
- > Traversing a list
- > List operations, slices and methods
- > Map, filter and reduce
- > Deleting elements
- > Lists and strings

- Python TUPLE

- > Advantages of Tuple over List
- > Packing and Unpacking
- > Comparing tuples
- > Creating nested tuple
- > Using tuples as keys in dictionaries
- > Deleting Tuples
- > Slicing of Tuple
- > Tuple Membership Test
- > Built-in functions with Tuple
- > Dotted Charts

- Python Sets

- > How to create a set?
- > Iteration Over Sets
- > Python Set Methods
- > Python Set Operations
- > Union of sets
- > Built-in Functions with Set
- > Python Frozenset

- Python Dictionary

- > How to create a dictionary?
- > PYTHON HASHING?
- > Python Dictionary Methods
- > Copying dictionary
- > Updating Dictionary
- > Delete Keys from the dictionary
- > Dictionary items() Method
- > Sorting the Dictionary
- > Python Dictionary in-built Functions
- > Dictionary len() Method
- > Variable Types
- > Python List cmp() Method
- > Dictionary Str(dict)

- Python Functions

- > What is a function?
- > How to define and call a function in Python
- > Types of Functions
- > Significance of Indentation (Space) in Python
- > How Function Return Value?
- > Types of Arguments in Functions
- > Default Arguments and Non-Default Arguments
- > Keyword Argument and Non-keyword Arguments
- > Arbitrary Arguments
- > Rules to define a function in Python
- > Various Forms of Function Arguments
- > Scope and Lifetime of variables
- > Nested Functions

- > Call By Value, Call by Reference
- > Anonymous Functions/Lambda functions
- > Passing functions to function
- > map(), filter(), reduce() functions
- > What is a Docstring?

## Advanced Python

- Python Modules

- > What is a Module?
- > Types of Modules
- > The import Statement
- > The from...import Statement
- > ..import \* Statement
- > Underscores in Python
- > The dir( ) Function
- > Creating User defined Modules
- > Command line Arguments
- > Python Module Search Path

- Packages in Python

- > What is a Package?
- > Introduction to Packages?
- > py file
- > Importing module from a package
- > Creating a Package
- > Creating Sub Package
- > Importing from Sub-Packages
- > Popular Python Packages

- Python Date and Time

- > How to Use Date & DateTime Class
- > How to Format Time Output
- > How to use Timedelta Objects
- > Calendar in Python
- > datetime classes in Python
- > How to Format Time Output?
- > The Time Module
- > Python Calendar Module
- > Python Text Calendar, HTML Calendar Class
- > Unix Date and Time Commands

- File Handling

- > What is a data, Information File?
- > File Objects
- > File Different Modes and Object Attributes
- > How to create a Text File and Append Data to a File and Read a File
- > Closing a file
- > Read, read line, read lines, write, write lines...!!
- > Renaming and Deleting Files
- > Directories in Python
- > Working with CSV files and CSV Module
- > Handling IO Exceptions

- Python OS Module

- > Python Errors
- > Common Runtime Errors in PYTHON
- > Abnormal termination

- > Chain of importance Of Exception
- > Exception Handling
- > Try ... Except
- > Try .. Except .. else
- > Try ... finally
- > Argument of an Exception
- > Python Custom Exceptions
- > Ignore Errors
- > Assertions
- > UsingAssertionsEffectively

- More Advanced PYTHON

- > Python Iterators, Generators, Closures, Decorators and Python @property

- Python Class and Objects

- > Introduction to OOPs Programming
- > Object Oriented Programming System
- > OOPS Principles
- > Define Classes
- > Creating Objects
- > Class variables and Instance Variables Constructors
- > Basic concept of Object and Classes
- > Access Modifiers
- > How to define Python classes
- > Python Namespace
- > Self-variable in python
- > Garbage Collection
- > What is Inheritance? Types of Inheritance?

- > How Inheritance works?
- > Python Multiple Inheritance
- > Overloading and Over Riding
- > Polymorphism
- > Abstraction
- > Encapsulation
- > Built-In Class Attributes

- Python Regular Expressions

- > What is Regular Expression?
- > Regular Expression Syntax
- > Understanding Regular Expressions
- > Regular Expression Patterns
- > Literal characters
- > Repetition Cases
- > Example of w+ and ^ Expression
- > Example of \s expression in re.split function
- > Using regular expression methods
- > Using re.match()
- > Finding Pattern in Text (re.search())
- > Using re.findall for text
- > Python Flags
- > Methods of Regular Expressions

- Python XML Parser

- > What is XML?
- > Difference between XML and HTML and XML, JSON, Gson
- > How to Parse XML and Create XML Node

- > Python vs JAVA
- > XML and HTML

## Python-Data Base Communication

- > What is Database? Types of Databases?
- > What is DBMS?, RDBMS?
- > What is Big Data? Types of data?
- > Oracle
- > MySQL
- > SQL server
- > DB2
- > Postgre SQL
- > Executing the Queries
- > Bind Variables
- > Installing of Oracle Python Modules
- > Executing DML Operations...!!

- Multi-Threading

- > What is Multi-Threading
- > Threading Module
- > Defining a Thread
- > Thread Synchronization

- Multi-Threading

- > The components of a web page
- > BeautifulSoup

- > Urllib2
- > HTML,CSS,JS,jQuery
- > Dataframes
- > PIP
- > Installing External Modules Using PIP

- Unit Testing with PyUnit

- > What is Testing?
- > Types of Testings and Methods?
- > What is Unit Testing?
- > What is PyUnit?
- > Test scenarios, Test Cases, Test suites

- Introduction to Python Web Frameworks

- > Django – Design
- > Advantages of Django
- > MVC and MVT
- > Installing Django
- > Designing Web Pages
- > HTML5, CSS3, AngularJS
- > PYTHON Flask, Bottle, Pyramid, Falcon

- GUI Programming-Tkinter

- > Introduction
- > Components and Events
- > Adding Controls
- > Entry Widget, Text Widget, Radio Button, Check Button
- > List Boxes, Menus, ComboBox



- Data Analytics

- > Introduction to data Big Data?
- > Introduction to NumPY and SciPY
- > Introduction to Pandas and MatPlotLib

- Introduction to Machine Learning with PYTHON

- > What is Machine learning?
- > Machine Learning Methods
- > Predictive Models
- > Descriptive Models
- > What are the steps used in Machine Learning?
- > What is Deep Learning?

- Data Science

- > What is Data Science?
- > Data Science Life Cycle?
- > What is Data Analysis, Data Mining
- > Analytics vs Data Science

- Internet of Things

- > IMPACT OF THE INTERNET
- > What is IOT
- > History of IoT
- > What is Network, Protocol, smart?
- > How IoT Works?
- > The Future of IoT

# Features



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