

## Python

Course Duration: 40 Hr.

### 1) Python – An Introduction

- Python: An Overview
- History of Python
- Version of Python
- Feature of Python
  - Simple
  - Open Source
  - High Level Programming Language
  - Portable
  - Object Oriented & Procedure Oriented
  - Interpreted
  - Easy to Maintain
- Comparisons of Python with Other Language
  - Java
  - C++
  - Java Script
  - Perl
- Execution of Programs
- Python Comment

### 2) Python Variables & Data Types

- What is variables

- Assign Variables
- Data Types:
  - Numeric Data Types
  - Boolean Data Types
  - Compound Data Types
  - Dictionaries
  - Sets
  - Array

### 3) Operators:

- Types of Operators
  - Arithmetic Operators
  - Relational Operators
  - Assignment Operators
  - Logical / Boolean Operators
  - Identity Operators
  - Membership Operators
  - Bitwise Operators
- Operators Precedence & Associativity
  - Precedence of Operators
  - Associativity of Operators

### 4) Python Conditional Statements:

- The If Statements
- The if-else Statements
- The Elif Statements
- The Nested If – Else Statements

### 5) Python Looping Concept:

- Python for Loop
- Python While Loop

### 6) Python Control Statements:

- The Break Statements
- The Continue Statements
- The Pass Statements

## 7) Python Data Type Casting

## 8) Python Number

- Mathematical Function
- Random Function
- Trigonometric Function

## 9) Python String

- Accessing Strings
- Basic Operations
- String slices
- String Built-In Function

## 10) Python List

- Introduction
- Accessing list
- Operations
- Working with lists
- List Slices
- Aliasing
- Cloning
- List Comprehension
- Deleting List
- Built-in Function

## 11) Python Tuple

- Introduction
- Creating Tuple
- Accessing Tuple
- Modifying Tuple
- Deleting Tuple
- Built-in Function

## 12) Python Dictionary

- Introduction
- Creating Dictionary

- Accessing Dictionary
- Deleting Dictionary
- Built-In Function

### 13) Python Sets

- Introduction
- Declaring an Sets
- Operation on Sets
- Built-In Function

### 14) Python Date & Time

- The Time Module
- The Calendar Module

### 15) Python Function

- Defining a function
- Calling a function
- Types of functions
- Function Arguments
- Anonymous functions
- Global and local variables

### 16) Module

- Introduction
- The Import Statement
- The From...Import Statement
- The From...Import\* Statement

### 17) File Handling (Input / Output)

- Introduction
- Opening & closing Files
- Reading & writing Files
- Rename & Remove Files
- The Directories

### 18) Exception Handling

- Error in Python Program
  - Syntax error
  - Exception
- Types of Exception
- Handling Exception in Python
- Raising Exception
- User Defined Exception

### 19) OOPs Concepts

- Class and object
- Attributes
- Inheritance
- Overloading
- Overriding
- Interface & Abstraction

### 20) Multithreading

- Thread
- Starting a thread
- Threading module
- Synchronizing threads
- Multithreaded Priority Queue

### 21) Python Mail Sending Program

- Introducing
- Execute mail program
- Attachment with file
- Sending multiple mail

### 22) Regular Expression

- Match function
- Search function
- Matching VS Searching
- Modifiers
- Patterns

### 23) Database Connection

- Introduction
- Connections
- Executing queries
- Transactions
- Handling error

### 24) Interacting with Networks

- Socket in Python
- TCP/IP Client & Server
- Creating a Client / Server Program
- Executing Socket Program

### 25) GUI (Graphical User Interface)

- Introduction
- Tkinter programming
- Tkinter widgets

### 26) Python Web Scraping

- Introduction
- Scrape all the details of any website
- Built-in Function

### 27) Python for Image Processing

- Introduction
- Image processing

- Loading Video
- Reading image
- Saving a capture video

## 28) Python Data Science

- introduction
- Data analysis with Python
- Plotting Graph

## 29) Introduction with Python Matching Learning

## 30) Introduction with Python Artificial Intelligence

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## Django

Course Duration: 20 Hr.

### Pre-Requisites

Good Knowledge of python

#### 1) Django – An Introduction

- What is Django ?
- Features of Django
- Advantage of Django
- MVC & MVT
- Installing Django

#### 2) Django – Views

- Your First View
- Mapping urls to Views
- How django process a request..?
- Urlpatterns
- Regular expressions
- 404 Errors

#### 3) Django – Templates

- Template Basic
- Dictionaries and Contexts
- Built-in Tags & filters
- Custom Tags & filters
- Using Templates in Views

#### 4) Django – Models

- Define models
- Setting up database access
- Creating django apps
- Defining model fields
- Creating a model
- How to create tables for models in Database
- Adding Model String Representations
- Inserting & updating Data
- Filtering Data
- Ordering Data
- Slicing Data



➤ Deleting Objects

5) Django – Admin Interface

- Enabling admin interface
- Creating admin user

6) Django – Forms

- Forms in Django
- Searching Query
- GET & POST methods
- Form fields in Django
- Simple validation
- Custom Validation
- Building a form in Django
- Placing form instance into the templates context

7) Django – User Authentication

- User objects
- Using the Django authentication system
- Authentication Views
- Extending the existing User model
- Build a login-logout application

➤ Django – Class-Based Views View()

- TemplateView()
- CreateView()
- ListView()
- DetailView()
- FormView()
- UpdateView()
- DeleteView()

8) Django – Pagination

- Function based pagination
- Class based pagination

9) Django – Mail Sending

- Configure email setting
- Send\_mail funtion

10) Django – Generating output in other format

11) Django – Session Framework

- Introduction about Sessions & cookies
- How to use sessions.?
- Using sessions in views
- Authentication in web requests
- Login & Logout with session

12) Django – Django Middleware

- Activating middleware
- Write your own middleware
- Expire session due to inactivity

13) Django – Django Rest API Framework

14) Django – Deploying Django Project

15) Django – Projects

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