



# EXCEL SOLUTIONS

Add Extra Skills to Your Professional Career

## PYTHON COURSE CONTENT

### 1. PYTHON BASICS

What is Python?

- Why Python?
- History of python
- Applications of Python
- Features of Python
- Advantages of Python
- Versions of Python
- Installation of Python
- Flavours of Python
- Comparison b/w various programming languages C, Java and Python

### 2. Python Operations

- Python Modes of Execution
- Interactive mode of Execution
- Batch mode of Execution
- Python Editors and IDEs
- Python Data Types

- Python Constants
- Python Variables
- Comments in python
- Output Print (), function
- Input () Function Accepting input
- Type Conversion
- Type (), Id () Functions
- Comments in Python
- Escape Sequences in Python
- Strings in Python
- String indexing and slicing

### **3. Operators in python**

- Arithmetic Operators
- Relational Operators
- Logical Operators
- Assignment Operators
- Bitwise Operators
- Membership Operators
- Identity Operators

### **4. Flow Control statements**

- Block/clause
- Indentation in Python

- **Conditional Statements**

- - If statement

- - If else statement

- **Looping Statements**

- - while loop,

- - while ... else,

- Infinite while

- - Nested while

- - for loop

- - Range () in for loop

- - Nested for loop

- - Break statement

- - Continue statement

- - Pass statement

## **5. Strings in Python**

- Creating Strings

- String indexing

- String slicing

- String Concatenation

- String Comparison

- String splitting and joining

- Finding Sub Strings

- String Case Change

- Split strings

- String methods

## **6. Collections in Python**

- Introduction

- Lists

- Tuples

- Sets

- Dictionaries

- Operations on collections

- Functions for collections

- Nested collections

- Differences b/w list tuple and set and Dictionary

## **7. Python Lists**

- List properties

- List Creation

- List indexing and slicing

- List Operations

- Nested Lists

- List modification

- List insertion and deletion

- List Methods

## **8. Python Tuples**

- Tuple properties
- Tuple Creation
- Tuple indexing and slicing
- Tuple Operations
- Nested Tuples
- Tuple Methods
- Differences b/w List and Tuple

## **9. Python Sets**

- Set properties
- Set Creation
- Set Operations
- Set Mathematical Operations
- Set Methods
- Insertion and Deletion operation

## **10. Python Dictionary**

- Dictionary properties
- Dictionary Creation
- Dictionary Operations
- Dictionary Methods
- Insertion and Deletion of elements
- Differences b/w list tuple and set and Dictionary

## 11. Functions in Python

- Defining a function
- Calling a function
- Properties of Function
- Examples of Functions
- Function with Parameters
- Function with Return type
- Argument types
  - default arguments
  - non-default arguments
  - -keyword arguments
  - -non keyword arguments
- Variable Length Arguments
- Returning Values
- Variables scope
- Call by value
- Call by reference
- Passing collections to function
- Local and Global variables
- Recursive Function
- Boolean Function
- Passing functions to function

- Anonymous or Lambda function
- Filter () and map () functions

## **12. Modules in Python**

- What is a module?
- Different types of module
- Creating user defined module
- Setting path
- The import statement
- Module search path
- Normal Import
- From ... Import
- Module Aliases
- dir () function
- Working with Standard modules -Math, Random, Date time and OS modules,

## **13. Packages**

- Introduction to packages
- Defining packages
- Importing from packages
- --init-- python file
- Defining sub-packages
- Importing from sub packages

## **14. Errors and Exception Handling**

- **Types of errors**

- Compile-Time Errors
- Run-Time Errors
- What is an Exception?
- Need of Exception handling
- Predefined Exceptions
- Try, Except finally blocks
- Handling Multiple Exceptions
- User-defined Exceptions
- Raise statement

## **15. File Handling**

- Introduction
- **Types of Files in Python**
- Opening a file
- Closing a file
- Writing data to files
- Tell ( ) and seek ( ) methods
- Reading a data from files
- Various functions

## **16. Regular Expressions**

- What is regular expression? Special characters
- Forming regular expression

- Compiling regular expressions
- Grouping
- Match () function
- Search () function
- Matching VS searching
- Splitting a string
- Replacing text

## **17. OOPs concepts**

- OOPS Features
- Encapsulation
- Abstraction
- Class
- Object
- Static and non-static variables
- Defining methods
- Diff b/w functions & methods
- Inheritance
- Types of Inheritances
- Polymorphism
  - Over riding
  - Constructors
  - Destructors
  - Object Reference count

- Garbage Collection

- Super () statement

## **18. Advanced concepts**

- Python Iterator

- Python Generator

- Python closure

- Python Decorators

- Web Scraping

- PIP

- Working with CSV files

- Working with XML files

- Working with JSON files

- Debugging

## **19. Multithreading**

- Defining a thread

- Starting a thread

- Threading module

- Threads synchronization

- Locking a Thread

- Communication b/w Threads

- Multithreaded priority queue

## **20. GUI Programming**

- Introduction
- Components and events
- Root window
- Fonts and colors
- Buttons checkbox
- Label widget
- Message widget
- Text widget

## **21. Database Concepts**

- Introduction
- Installing Oracle database
- Creating database users,
- Installing Oracle Python modules
- Establishing connection with oracle
- Closing database connections
- Cursor object
- Executing SQL queries
- Retrieving data from Database.
- Using bind variables executing  
SQL queries
- Transaction Management
- Handling errors

## **22. Python Date and Time**

- [How to Use Date & Date Time Class](#)
- [Time and date Objects](#)
- [Calendar in Python](#)
- [The Time Module](#)