

Python Course Content (Day wise Plan)

1) Introduction to Python

Day 1

- ☐ What is Python
- ☐ Why should I learn Python
- ☐ Installing Python
- ☐ How to execute Python Programs
- ☐ Anaconda Installation & Setup
- ☐ Jupyter Lab\Notebook Overview (Anaconda Distribution)

2) Variables and Data types

Day 1

- ☐ Python Variables
- ☐ Python Numbers
- ☐ Python Strings
- ☐ Python Lists
- ☐ Python Tuples
- ☐ Python Dictionaries
- ☐ Python Sets
- ☐ Python Arrays
- ☐ Python Operators

3) Conditional Statements and Loops in Python

Day 1

- ☐ Python If...Else, If Elif else Loop
- ☐ Python While else Loops
- ☐ Python For else Loops
- ☐ Global vs Local variable in Python

4) Control Statements in Python

Day 1

- ☐ Return Statement
- ☐ Continue Statement
- ☐ Break statement
- ☐ Pass statement

5) Functions

Day 2

- ☐ Functions Concept in Python
- ☐ creating a function
- ☐ calling a python function
- ☐ Arguments in function – Formal and Actual Arguments
- ☐ Types of Actual Arguments – Positional, Keyword, Default, Variable length, Keyword variable length
- ☐ Built-in functions – Filter, Map, Reduce
- ☐ Function Recursion
- ☐ Decorators
- ☐ Generators in Python
- ☐ Iterators in Python
- ☐ Search algorithms in Python – Binary\Selection\Bubble

6) Modules and Packages

Day 2

- ☐ Importing Modules
- ☐ Creating Module
- ☐ Use a Module
- ☐ Renaming Modules
- ☐ Built-in Modules
- ☐ Special Variable __name__
- ☐ Multithreading in Python

7) **Classes and Objects**

Day 3

- ☐ Understanding Class and Object - Conceptual
- ☐ `__init__` - Understanding role of constructor
- ☐ Types of variables and methods in Class
- ☐ Inner Class
- ☐ Class Inheritance – Single level, Multi-level and Multiple
- ☐ Abstraction
- ☐ Polymorphism – Duck Typing, Method Overloading, Method Overriding, Operator Overloading
- ☐ Encapsulation

8) **File and Exception Handling**

Day 3

- ☐ File handling\Read files
- ☐ Write\Create files
- ☐ Delete files
- ☐ Try...except...finally statement

9) **Numpy Arrays**

Day 4

- ☐ Create multi-dimensional arrays
- ☐ Numpy Data Types
- ☐ Array attributes
- ☐ Indexing and Slicing
- ☐ Manipulate array shapes

10) Introduction to Pandas

Day 4 and Day 5

- ☐ Installing Pandas
- ☐ Dataframes\Series
- ☐ Joining Dataframes
- ☐ Handle missing data
- ☐ Concatenating\Appending Dataframes

11) Python Regular Expressions

Day 5

- ☐ Match function
- ☐ Search function
- ☐ Match vs String function
- ☐ Search and Replace
- ☐ Extended Regular Expression
- ☐ Wildcards