

Python Programming Course

- **Basic Python (10 hours)**

- 1) Introduction to Python (4 hours)

- Python Installation and Setup
 - Python IDEs and Editors
 - Basic Syntax and Variables
 - Data Types (Strings, Numbers, Booleans)

- 2) Control Structures (2 hours)

- Conditional Statements (if, elif, else)
 - Loops (for, while)

- 3) Data Structures (2 hours)

- Lists and Tuples
 - Sets and Dictionaries

- 4) Basic Functions and Error Handling (2 hours)

- Writing Simple Functions
 - Basic Exception Handling

- **Intermediate Python (10 hours)**

- 5) Advanced Data Structures and Algorithms (4 hours)

- List Comprehensions
 - Lambda Functions
 - Working with Collections (map, filter, reduce)
 - Basic Algorithms (Sorting, Searching)

- 6) Object-Oriented Programming (OOP) (2 hours)

- Classes and Objects
 - Inheritance and Polymorphism
 - Encapsulation and Abstraction

- 7) File Handling and Modules (2 hours)

- Reading and Writing Files
 - Understanding and Creating Modules

8) Intermediate Projects (2 hours)

- Mini Projects (e.g., Calculator, Simple File Browser)

- **Advanced Python (10 hours)**

9) Advanced Python Concepts (4 hours)

- Decorators and Generators
- Context Managers
- Regular Expressions

10) Introduction to Python Libraries (2 hours)

- NumPy and Pandas Overview
- Matplotlib and Data Visualization

11) Advanced Projects (2 hours)

- Advanced Project (e.g., Web Scraping, Data Analysis)

12) Python in Networking and Storage (2 hours)

- Introduction to Networking with Python (sockets, requests)
- Basics of Storage Management with Python

- **Specialized Python and Case Studies (10 hours)**

- Python in Telecom (2 hours)
- Overview of Python in Telecom (Automation, Data Handling)

13) Case Studies in Networking and Storage (4 hours)

- Case Study 1: Network Automation using Python
- Case Study 2: Building a Simple Storage Management System

14) Case Study in Telecom and Final Project (4 hours)

- Case Study 3: Telecom Data Analysis using Python

- **Final Project: Integrating Python with Networking, Storage, and Telecom Solutions**