



ARInnovations India

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PYTHON FULL COURSE – 25 DAYS PROGRAM

Course Duration: 25 Days (1:30 Hour per Day)

Mode: Online

Level: Beginner to Advanced

Prerequisite: No prior coding knowledge required

Course Objective

This program is designed to build strong Python programming skills from the ground up.

By the end of this course, students will be able to:

- Write efficient and readable Python code.
- Work with data structures, functions, and modules.
- Connect Python with databases and APIs.
- Automate tasks and build mini-projects.
- Apply Python in Data Engineering, Data Science, and AI environments.

Course Highlights

- **100% Practical Sessions** – Hands-on coding every day.
- **Assignments & Real-World Examples.**
- **Mini Projects on Databricks / Jupyter Notebook.**
- **Interview Preparation & Resume Guidance.**
- **Industry-focused curriculum.**

Course Contents

Module 1: Python Fundamentals

- Introduction to Python, installation, and setup
 - Python syntax, indentation, comments
 - Variables and data types
 - Type casting and input/output
 - Operators and expressions
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Module 2: Control Flow Statements

- Conditional statements (if, elif, else)
 - Looping (for, while)
 - break, continue, and pass statements
 - Nested loops and decision making
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Module 3: Data Structures

- Strings and string manipulation
 - Lists, tuples, and sets
 - Dictionaries and key-value operations
 - List comprehension and generator expressions
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Module 4: Functions and Modules

- Defining and calling functions
 - Function arguments, return types
 - Lambda functions
 - Modules and packages
 - Importing libraries and creating custom modules
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Module 5: File Handling

- Working with text and CSV files
 - Reading and writing JSON files
 - Exception handling (try, except, finally)
 - Context managers (with statement)
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Module 6: Object-Oriented Programming (OOP)

- Classes and objects
 - Constructors and destructors
 - Inheritance and polymorphism
 - Encapsulation and abstraction
 - Static and class methods
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Module 7: Advanced Python Concepts

- Iterators and generators
 - Decorators and closures
 - Regular expressions (re module)
 - Date and time operations
 - Logging and debugging
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Module 8: Working with Libraries

- **NumPy** – numerical computing
 - **Pandas** – data analysis and cleaning
 - **Matplotlib / Seaborn** – data visualization
 - **Requests** – API integration
 - **JSON and OS modules** – file and system handling
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Module 9: Database Connectivity

- Introduction to SQL and databases
 - Connecting Python to **MySQL / SQL Server**
 - CRUD operations using Python
 - Data extraction and insertion from tables
 - Using **pymysql / pyodbc** libraries
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Module 10: Python in Data Engineering

- Python with **PySpark** basics
 - Data cleaning and validation using Python
 - Working with JSON, XML, and CSV files
 - Data pipeline automation with Python scripts
 - Integration with **Databricks** and **Azure Data Lake**
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Module 11: Projects & Interview Preparation

- Mini Project 1:
 - Mini Project 2:
 - Mini Project 3:
 - Python Coding Interview Practice
 - Real-world scenario discussion
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25-DAY COURSE PLAN

Day	Topics Covered
Day 1	Introduction to Python, Setup, and Basics
Day 2	Variables, Data Types, Operators
Day 3	Input/Output, Type Casting, Expressions
Day 4	Conditional Statements (if, elif, else)
Day 5	Loops (for, while), break, continue
Day 6	Strings and String Functions
Day 7	Lists and Tuples
Day 8	Sets and Dictionaries
Day 9	Functions and Parameters
Day 10	Lambda, Modules, and Imports
Day 11	Exception Handling and File Handling
Day 12	JSON and CSV File Operations
Day 13	OOPs Concepts – Classes and Objects
Day 14	Inheritance, Polymorphism, Encapsulation
Day 15	Decorators, Generators, and Iterators
Day 16	Regular Expressions and Logging
Day 17	Working with NumPy and Pandas
Day 18	Data Visualization using Matplotlib
Day 19	Database Connectivity (SQL + Python)
Day 20	CRUD Operations with Python
Day 21	Python with APIs and JSON Data
Day 22	Python with Databricks / PySpark Introduction
Day 23	Data Validation and Automation Scripts
Day 24	Mini Project: Data Pipeline or Validation Task
Day 25	Interview Questions, Resume, and Project Review

Key Outcomes

After completing this course, students will be able to:

- Write Python programs confidently
- Work with databases, files, and APIs
- Use Python in **Data Engineering** and **Databricks** environments
- Automate repetitive data tasks
- Clear Python technical interviews confidently