

Python Programming

A comprehensive course in Python programming covering syntax basics, data structures, object-oriented programming (OOP), file & exception handling, database connectivity, web dev basics, data analysis, and AI scripting.

Duration 4 to 6 Months	Training Mode Offline Classroom Training	Certification Industry Certificate	Practical Labs 100% Hands-on
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Tools & Tech: Python • VS Code • PyCharm • Jupyter Notebook • Google Colab • NumPy • Pandas • Matplotlib • Seaborn • Flask • Django • SQLite • MySQL • REST APIs • JSON • Requests • BeautifulSoup • Selenium • Git • GitHub • OpenAI API • Google Gemini API • AI-Assisted • Development

Detailed Course Curriculum & Modules

MODULE 01 Introduction to Python - Python Fundamentals - Introduction to Python - Features of Python - Installing Python - Python IDEs (VS Code, PyCharm & Jupyter Notebook) - Running Python Programs - Python Syntax - Comments - Variables - Data Types - Type Conversion - Input & Output	MODULE 02 Control Flow & Functions - Decision Making - Conditional Statements - if Statement - if-else Statement - Nested if - elif Statement - Match Case (Introduction) - Logical Operators - Comparison Operators - Loops - for Loop - while Loop
MODULE 03 Data Structures - Python Collections - Strings - String Operations - String Methods - Lists - List Methods - Tuples - Sets - Dictionaries - Nested Collections - List Comprehensions - Dictionary Comprehensions	MODULE 04 Object-Oriented Programming (OOP) - OOP Concepts - Classes & Objects - Constructors - Instance Variables - Class Variables - Methods - Encapsulation - Inheritance - Polymorphism - Method Overriding - Method Overloading (Concept) - Abstraction
MODULE 05 File Handling & Exception Handling - File Management - Reading Files - Writing Files - Appending Files - File Modes - CSV Files - JSON Files - Working with Excel Files - File System Operations - Exception Handling - Exception Types - try	MODULE 06 Modules, Packages & Libraries - Python Modules - Importing Modules - Creating Modules - Python Packages - pip Package Manager - Virtual Environments - Requirements File - Package Installation - Code Organization - Popular Libraries - math - random
MODULE 07 Database Programming - Database Connectivity - Introduction to Databases - SQLite - MySQL Connectivity - Python Database APIs - CRUD Operations - SQL Queries - Transactions - Parameterized Queries - Database Error Handling - Database Best Practices	MODULE 08 Web Development with Python - Backend Development - Introduction to Flask - Flask Routing - Templates - Forms - Jinja2 - Static Files - Sessions - Authentication Basics - REST API Development - JSON APIs - Django (Introduction)

MODULE 09 | Data Analysis with Python

- Data Analytics
- NumPy Fundamentals
- Pandas Fundamentals
- DataFrames
- Data Cleaning
- Data Transformation
- Data Visualization
- Matplotlib
- Seaborn
- CSV & Excel Analysis
- Exploratory Data Analysis (EDA)

MODULE 10 | Automation & AI with Python

- Python Automation
- Web Scraping Basics
- BeautifulSoup
- Selenium
- Email Automation
- PDF Processing
- Excel Automation
- File Automation
- Task Scheduling
- API Integration
- JSON Processing
- AI Integration

MODULE 11 | Testing & Deployment

- Software Development
- Debugging
- Unit Testing
- unittest Framework
- Code Documentation
- Code Optimization
- Virtual Environments
- Project Structure
- Git & GitHub Integration
- Packaging Python Applications
- Deployment Basics

Practical Projects & Industry Capstones

- Student Management System
- Library Management System
- Banking Application
- Inventory Management System
- Expense Tracker
- Web Scraper
- REST API using Flask
- Employee Management System
- Data Analysis Dashboard
- AI Chatbot Application
- Automation Tool
- Python Business Management System
- File Management Utility
- End-to-End Python Application

■ Industry Certification

Authorized certificate verified globally via online portal.

■ 100% Placement Support

Resume review, mock interviews, and recruiter connections.

■ Lab Access & Mentorship

Dedicated workstation lab hours with expert guidance.