

DataVedanta Technologies

Python for Modern Software Engineering & AI Integration — Professional Track
(2 Months / 8 Weeks)



Format: Beginner to Production-Ready, Hands-On Live Training Program

PROFESSIONAL TRACK

About the Company

We aim to bridge the gap between academic learning and industry expectations through practical, industry-oriented education. We are building a community of industry professionals passionate about sharing their expertise and making high-quality, industry-relevant education accessible to aspiring professionals.

Benefits of Completing the Course

- **Production-Ready Portfolio:** Graduate with a robust, AI-integrated market intelligence application on GitHub that proves real-world utility.
- **Modern Tech Stack Mastery:** Gain hands-on operational experience with Python core, OOP, SQLite databases, web scraping (requests/BeautifulSoup), and GenAI API integration.
- **Real-World Engineering:** Automate practical business workflows from web scraping to database storage and AI-powered summarization.
- **Career Acceleration:** Build foundational coding proficiency and modern AI-leveraging skills heavily demanded across software development and data roles.

Month-by-Month Course Overview

Month 1: Python Core, Advanced Data Structures & File Operations

- **Module 1: Python Core & Control Flow:** Development environment setup (VS Code) and variables; String manipulation and formatting patterns; Conditional logic (if, elif, else) and loops (for, while). **Lab:** Building a dynamic CLI tool that authenticates users and calculates compound interest.
- **Module 2: Advanced Data Structures:** Deep dive into Lists, Dictionaries, Tuples, and Sets; Pythonic list and dictionary comprehensions; Memory-efficient data handling techniques. **Lab:** Creating an in-memory task management system (To-Do list) using nested dictionaries.
- **Module 3: Functions & Resilient Code:** Defining functions, scope rules, and parameter unpacking (*args, **kwargs); Custom error handling using try, except, and finally blocks; Writing graceful logging routines. **Lab:** Writing modular utility functions that catch and log errors without crashing.
- **Module 4: Object-Oriented Programming (OOP) & File I/O:** Classes, instances, constructors (__init__), and encapsulation; Class inheritance and object polymorphism; Reading and writing CSV and JSON data files. **Lab:** Building a simulated E-commerce cart system with interacting Product and Customer classes.

Month 2: Databases, Web Scraping, AI Integration & Capstone

- **Module 1: Databases with Python:** Relational database fundamentals and SQL concepts; Integrating Python with SQL using the built-in sqlite3 library; Executing queries, inserts, and transaction management. **Lab:** Writing a script that reads user data from a local CSV and inserts it into a SQL database.
- **Module 2: Web Scraping & Data Extraction:** HTTP request lifecycles using the requests library; Parsing HTML and navigating DOM trees with BeautifulSoup; Handling headers, parameters, and basic anti-bot filters. **Lab:** Scraping live product prices from an e-commerce target site.
- **Module 3: API Integration & AI Models:** Consuming external REST APIs and managing auth tokens; Structuring JSON requests and parsing payloads; Integrating Generative AI APIs (OpenAI / Gemini) into Python scripts. **Lab:** Sending text prompts to an AI API and retrieving generated programmatic responses.
- **Module 4: Capstone Project & Deployment:** *The AI-Powered Market Intelligence Tracker Capstone:* **Extraction:** Scraping technology or finance news articles using requests and BeautifulSoup; **Storage:** Automatically inserting article titles, URLs, and text into a local SQLite database; **AI Integration:** Looping through database entries and prompting Generative AI to generate concise 3-bullet-point executive summaries; **Reporting:** Exporting compiled data into a clean, formatted CSV file for business users.

Learning Journey Visual Roadmap (Step-by-Step Process Flow Layout)

1	Week 1–2 Roadmap: Core Syntax & Data Structures Deliverable: CLI authentication tool, compound interest calculator, and in-memory To-Do list
2	Week 3–4 Roadmap: OOP, Functions & File I/O Deliverable: Modular error-handled utility functions and simulated E-commerce OOP cart
3	Week 5–6 Roadmap: SQL Databases & Web Scraping Deliverable: SQLite database integration scripts and BeautifulSoup e-commerce price scrapers
4	Week 7–8 Roadmap: API Integration & AI Capstone Deliverable: REST API consumer scripts and the AI-Powered Market Intelligence Tracker Capstone

Course Pricing & Investment

Course Name	Original Price	Discount	Price After Discount
Python Core & Advanced Programming	₹28,500	30%	₹19,950