

C1

Core Python Programming

Build a strong foundation in Python — the world's most beginner-friendly yet powerful language.

- **Python Syntax & Basics**

Variables, keywords, indentation, input/output, and comments

- **Data Types & Typecasting**

Integers, floats, strings, booleans, complex numbers

- **Operators**

Arithmetic, assignment, comparison, logical, bitwise, membership, and identity

- **Control Flow**

Conditional statements (`if` , `elif` , `else`) and loops (`for` , `while`)

- **Functions**

Built-in and user-defined functions, arguments, return values, lambda functions, recursion

- **String & List Manipulation**

Slicing, indexing, common methods, list comprehension

- **Tuples, Sets & Dictionaries**

CRUD operations, methods, iteration, nesting

- **Exception Handling**

Try-except blocks, finally clause, raising exceptions, custom exceptions

- **File Handling**

Reading/writing text, CSV, and JSON files

- **Object-Oriented Programming**

Classes, objects, `__init__` , `self` , inheritance, method overriding, encapsulation, abstraction

- **Modules & Packages**

Importing built-in and custom modules, Python package management using `pip`

- **Introduction to Libraries**

Basics of using `NumPy`, `Pandas`, and `Matplotlib` for data manipulation and visualization

- **Coding Best Practices**

Code readability, naming conventions, PEP 8 style guide, and debugging techniques

Front-End Development

Design attractive, interactive, and responsive interfaces that users love.

- **HTML5:** Structure your content using semantic tags, forms, tables, and multimedia
 - **CSS3:** Style your websites with layouts, flexbox/grid, animations, and transitions
 - **JavaScript (ES6+):** Make web pages dynamic using functions, arrays, events, and modern syntax
 - **Bootstrap 5:** Build responsive and mobile-first UIs with reusable components
 - **React.js:**
 - Component-based architecture
 - Props, state, lifecycle methods, and hooks
 - Form handling, conditional rendering, routing
 - Consuming REST APIs using Fetch or Axios
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Back-End Development with Python

Master the back-end to process data, manage business logic, and create secure APIs.

- **Flask (Introduction):** Build lightweight web apps and RESTful APIs

- **Django (In-Depth):**
 - MVT architecture (Model-View-Template)
 - URL routing, views, templates with Jinja
 - Form handling and validation
 - User authentication (login, logout, registration)
 - Django ORM for database interaction
 - Admin panel customization
 - **Django REST Framework (DRF):**
 - Building scalable APIs
 - Serializers, viewsets, routers
 - Token-based authentication (JWT)
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Database & Data Handling

Handle real-world data using powerful database tools.

- **SQL with Oracle:**
 - Basic to advanced queries (SELECT, JOIN, GROUP BY, etc.)
 - Subqueries, constraints, indexes, functions, and procedures
 - **Django ORM + Oracle:**
 - Data modeling with Python classes
 - Migrations, relationships (OneToOne, ForeignKey, ManyToMany)
 - Performing CRUD operations seamlessly
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Tools, Workflows & Deployment

Use the tools modern developers rely on every day.

- **Git & GitHub:** Version control, branching, merging, and pushing code
- **Postman:** Testing and debugging REST APIs

- **Virtual Environments:** Managing Python dependencies with `venv` or `pipenv`
 - **Migrations & Debugging:** Django management commands, migrations, and debug tools
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🌟 Real-Time Practice & Hands-On Experience

- Build multiple **mini and capstone projects** across the course to apply every concept you learn
 - Work on **team projects** using GitHub to simulate real-world collaboration
 - Apply **front-end + back-end + database integration** in every major milestone
 - Follow an **agile-like structure** with iterative development, code reviews, and testing
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🎯 Ideal For

- Absolute beginners in programming
 - Students and recent graduates seeking job-ready skills
 - Working professionals planning a switch to development
 - Freelancers looking to build complete web apps for clients
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📖 Career Support & Certification

- Industry-Recognized Course Completion Certificate
- Personalized Resume & LinkedIn Profile Building
- GitHub Portfolio Development
- Mock Interviews – Technical + HR
- Placement Assistance through Club Coder's partner network