

## MODULE 1: Introduction to Python

- Setting Up the Python Environment: Installation, IDEs, and tools
- Python Basics: Variables, data types, operators
- Control Structures: Conditionals, loops
- Functions and Modules: Defining functions, importing modules
- Data Structures: Lists, dictionaries, sets, and tuples
- Error Handling and Debugging

## MODULE 2: Advanced Python Concepts

- Object-Oriented Programming: Classes, inheritance, encapsulation
- Working with Files: Reading, writing, and managing files
- Understanding Libraries and Packages
- Introduction to Virtual Environments

## MODULE 3: Introduction to Django

- Setting Up Django: Installing Django, creating a Django project
- Django Project Structure: Understanding models, views, and templates
- Database Setup and Models: Creating models, migrations, and the Django ORM
- Templates and Static Files: Using HTML templates, managing static assets
- Django Admin: Setting up and customizing the Django admin panel



# PYTHON COURSE OVERVIEW

## MODULE 4 : Django Views and Forms

- ◆ Django Views: Function-based views, class-based views
- ◆ Working with Django Forms: Creating forms, form validation, and error handling
- ◆ Authentication and Authorization: User registration, login, logout, and permission management

## MODULE 5 : Django ORM and Querysets

- ◆ Advanced ORM Queries: Filtering, ordering, and complex queries
- ◆ Database Relationships: Foreign keys, one-to-one, and many-to-many relationships
- ◆ Project: Expanding the blog application with complex data models and queries

## MODULE 6 : Django REST Framework Basics

- ◆ Introduction to REST and APIs
- ◆ Setting Up Django REST Framework: Installation and configuration
- ◆ Serializers: Creating serializers to convert Django models to JSON
- ◆ ViewSets and Routers: Using viewsets to create API views and routers for URLs
- ◆ Basic CRUD Operations: Implementing Create, Read, Update, and Delete operations

## MODULE 7 : Advanced Django REST Framework

- ◆ Authentication in Django REST Framework: Token-based and session-based authentication
- ◆ Permissions and Throttling: Custom permissions, rate limiting
- ◆ Pagination and Filtering: Adding pagination and query filters to API endpoints
- ◆ Nested Serializers and Relationships: Handling complex data structures in serializers

## MODULE 8 : Building a Complete Web Application

- ◆ Integrating Django and Django REST Framework: Combining frontend and backend
- ◆ Building a Frontend with Django Templates: Integrating Django views with REST API data
- ◆ Testing: Writing tests for Django applications and APIs
- ◆ Debugging and Troubleshooting
- ◆ Project: Creating a full-featured web application