**Syllabus: CI/CD & DevOps with Python (Hands-on Approach)**

**📖 Module 1: Introduction to DevOps & CI/CD**

✅ Overview of DevOps & CI/CD ✅ Key Principles of Continuous Integration, Delivery, and Deployment ✅ Understanding Pipelines in DevOps ✅ Setting Up Python Development Environment

**🚀 Module 2: Version Control with Git & GitHub**

✅ **Hands-on:** Installing Git & Setting Up GitHub ✅ Git Workflow: Cloning, Branching, Merging, and Pull Requests ✅ **Python Example:** Managing a Flask-based Web App with Git ✅ Automating GitHub Actions for Python Projects

**⚙️ Module 3: Containerization with Docker**

✅ Introduction to Containers & Docker ✅ **Hands-on:** Docker Installation & Basic Commands ✅ Writing Dockerfiles for Python Applications ✅ Building & Running Python Apps in Containers ✅ Using Docker Compose for Multi-Service Applications

**☁️ Module 4: CI/CD with GitHub Actions & Jenkins**

✅ **Hands-on:** Setting Up GitHub Actions for Python CI ✅ Writing Custom Workflows for Python Unit Tests ✅ **Jenkins Integration:** Automating Python Builds & Tests ✅ Deploying Python Apps with CI/CD Pipelines

**📈 Module 5: Infrastructure as Code (IaC) with Terraform & Ansible**

✅ Introduction to Infrastructure as Code (IaC) ✅ **Hands-on:** Deploying Python Apps on AWS using Terraform ✅ Using Ansible to Automate Python App Configurations

**🔐 Module 6: Security & Monitoring in DevOps**

✅ DevSecOps Best Practices for Python Apps ✅ **Hands-on:** Static Code Analysis & Security Scanning ✅ Logging & Monitoring Python Apps with Prometheus & Grafana

**🚀 Module 7: Cloud Deployment & Scaling**

✅ Deploying Python Applications on AWS/GCP/Azure ✅ **Hands-on:** Using Kubernetes for Python App Deployment ✅ Scaling Python Apps Using Load Balancing Technique