Introduction to Python Programming and to Red Hat OpenShift AI

Course Duration: 40 Hours   **Course code: AI252**

1. Course Overview

The AI252 – Introduction to Python Programming and to Red Hat OpenShift AI course provides foundational skills in Python programming alongside an introduction to Red Hat OpenShift AI. Participants learn essential Python syntax, data structures, and scripting techniques, then explore how to build and deploy AI/ML models using OpenShift AI. The course bridges programming fundamentals with practical cloud-native AI workflows, enabling learners to confidently develop, test, and run intelligent applications in an enterprise-ready environment.

2. What you'll learn?

By the end of this course, learners will:

This course aims to introduce participants to the fundamentals of Python programming alongside practical exposure to Red Hat OpenShift AI. Learners will build essential Python coding skills while gaining an understanding of how to use OpenShift AI to develop, deploy, and manage artificial intelligence workloads. By integrating foundational programming with modern AI platform capabilities, this course empowers participants to bridge the gap between coding proficiency and scalable AI delivery in enterprise-ready environments.

3. Target Audience

- Aspiring Python programmers

- Data science and machine learning enthusiasts

- IT professionals exploring AI/ML platforms

- Cloud engineers and DevOps practitioners

- Application developers interested in container-based AI workflows

- Students or graduates seeking a foundation in Python with practical AI deployment skills

4. Pre-Requisites

Participants should have:

- To make the most of this course, participants should have a basic understanding of computer operation and familiarity with general IT concepts. While no prior programming experience is strictly necessary, a logical mindset and eagerness to learn coding will be highly beneficial. Exposure to cloud computing, Linux fundamentals, or containers is a plus, though not mandatory.
- Basic knowledge of computer systems
- Familiarity with IT or software concepts
- Interest in programming and AI workflows
- Prior experience with Linux or cloud platforms (optional but helpful)

5. Course content

Module 01 – Introduction to Python Programming

- Overview of Python and Its Applications
- Setting Up the Python Development Environment
- Understanding Python Syntax and Basic Operations

Module 02 – Working with Data in Python

- Variables, Data Types, and Operators
- Working with Strings, Lists, Tuples, and Dictionaries
- File Handling and Input/Output Operations

Module 03 – Python Control Structures and Functions

- Conditional Statements and Loops
- Defining and Using Functions
- Exception Handling and Debugging Techniques

Module 04 – Introduction to Data Analysis and Libraries

- Using Python Libraries: NumPy and Pandas Basics
- Data Manipulation and Analysis
- Introduction to Visualization with Matplotlib

Module 05 – Introduction to Red Hat OpenShift AI

- Overview of OpenShift AI and Cloud-Native AI Concepts
- Setting Up OpenShift AI Environment
- Exploring Key Features and Components of OpenShift AI

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Module 06 – Building and Deploying AI/ML Models

- Basics of Machine Learning Workflows
- Integrating Python-Based Models with OpenShift AI
- Deploying AI Applications in Cloud and Hybrid Environments

Module 07 – Managing and Monitoring AI Workloads

- Monitoring AI Pipelines and Model Performance
- Securing AI Applications in OpenShift
- Best Practices for AI Model Lifecycle Management