Course Name : **AI Powered Python Programming**
Duration : **2 Days (Physical Classroom / Virtual Live Instructor)**
Skill Level : **Beginner**

COURSE DESCRIPTION:

Embark on an exciting journey into Python programming with the support of an AI Companion, designed to make learning interactive, efficient, and engaging for new programmers. This comprehensive 2-day course begins by building a strong foundation in Python fundamentals, from writing your first "Hello, World!" program to mastering control flow, loops, and functions. With AI-assisted learning and debugging, you'll not only understand the essentials of coding but also experience how AI can enhance your programming journey. Each module features hands-on practice projects, such as an AI-powered number guessing game and a custom calculator, ensuring you gain real-world skills while staying motivated and confident.

As you advance, dive into working with APIs, manipulating data, and creating captivating visualizations with AI support. Learn to fetch and analyze data from APIs, automate tasks, and create dynamic visual insights using libraries like matplotlib. The course culminates in an engaging capstone project—designing an AI-enhanced Dream Vacation Planner. You'll combine your Python skills with live API data and AI suggestions to craft an interactive and practical application. Whether you're exploring programming for the first time or seeking to enhance your skills, this course is your gateway to Python coding with the innovative support of AI assistance.

WHAT WILL YOU LEARN?

By the end of this course, you will have mastered the fundamentals of Python programming with the innovative support of an AI Companion, making coding easier and more engaging. You'll learn to write Python programs, work with data, automate tasks, and debug efficiently with AI assistance. You'll explore APIs to fetch and manipulate real-world data, create stunning visualizations, and develop interactive applications. From building an AI-powered number guessing game to designing a Dream Vacation Planner with live data and chatbot feedback, you'll gain practical, hands-on experience that prepares you to tackle real-world programming challenges confidently.

PREREQUISITE:

This course is designed for absolute beginners with **no prior programming experience**. All you need is a basic understanding of using a computer and a willingness to learn.

METHODOLOGY:

This program will be conducted with interactive lectures, PowerPoint presentations, discussions, and practical exercises. This course can be conducted as instructor-led (ILT) or virtual instructor-led training (VILT).

JOB SCOPE:

Upon completion of this course, candidates may pursue the following career paths:

- Python Automation Specialist
- AI Engineer
- AI/ML Assistant Developer

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DAY 1: PYTHON FUNDAMENTALS WITH AI ASSISTANCE

MODULE 1: INTRODUCTION TO PYTHON AND AI-ASSISTED PROGRAMMING

- Welcome
- What is programming? Understanding Python's role in AI.
- Introduction to AI-assisted learning and debugging.
- Setting up the Python environment: Installing Jupiter Notebook.
- Writing your first Python program: "Hello, World!"
- Variables, data types, and basic operations.
- Printing and formatting strings using f-strings.

MODULE 2: CONTROL FLOW AND AI-ENHANCED CODING

- Boolean logic and relational operators.
- Decision-making with if statements.
- Automating repetitive tasks using for and while loops.
- AI-assisted exercises: Debugging control flow logic.
- **Practice project**: Creating an AI-enhanced number guessing game.

MODULE 3: FUNCTIONS AND REUSABILITY WITH AI

- Understanding built-in functions and creating user-defined functions.
- Using AI chatbots for function design and debugging.
- Introduction to error handling with try and except.
- **Practice project:** Building a custom calculator with AI suggestions.
- **Hands-On Project**: AI-Assisted Task Manager

DAY 2: DATA MANIPULATION, APIS, AND VISUALIZATION

MODULE 4: WORKING WITH FILES AND DATA

- Reading from and writing to text files in Python.
- Using AI to analyze text and extract information.
- Introduction to working with CSV files: Loading, analyzing, and saving data.
- **Practice project**: Analyzing travel blogs with AI to extract key insights.

MODULE 5: WORKING WITH APIS

- Introduction to APIs: What they are and how they work.
- Fetching data using APIs with the requests library.
- Parsing JSON responses to extract useful information.
- Using AI to automate API-based tasks (e.g., generating API queries).
- **Practice project:** Building an AI-powered weather app using an open weather API.

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MODULE 6: DATA VISUALIZATION WITH AI

- Introduction to visualization libraries like matplotlib.
- AI-assisted creation of charts: Line, bar, and scatter plots.
- Integrating real-time API data into visualizations.
- **Practice project:** Visualizing live currency exchange rates using API data and AI insights.

FINAL CAPSTONE PROJECT: AI-ENHANCED DREAM VACATION PLANNER

- Designing a vacation planner using AI and Python.
- Loading city data from a CSV file.
- Fetching live data using APIs (e.g., weather or travel data).
- Using AI to suggest activities, restaurants, and itineraries.
- Automating itinerary generation with chatbot feedback.
- Interactive debugging and project refinement with AI assistance.

CONCLUSION

- QA
- Useful References and Books
- Feedback

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