

"Certified Entry-Level AI Specialist with Python: 7-Day Intensive"

Course Introduction

The "PCEI – Certified Entry-Level AI Specialist with Python" course is designed to equip participants with foundational skills in artificial intelligence and machine learning using the Python programming language. Over the course of seven days, participants will delve into the basics of AI, gain hands-on experience with essential Python libraries, and develop a strong understanding of how AI models are built, evaluated, and deployed. This course is suitable for beginners who have a basic understanding of programming and are eager to explore the world of AI.

Module Breakdown

Day 1: Introduction to AI and Python Basics

- Understand the scope and significance of artificial intelligence in today's technology landscape.
- Get introduced to Python as a powerful tool for AI development, focusing on its basic syntax and core functionalities.
- Set up a Python development environment, including IDEs and essential libraries.

Day 2: Python Libraries for AI

- Explore key Python libraries such as NumPy and Pandas, which are crucial for data manipulation and analysis.
- Gain proficiency in using Matplotlib and Seaborn for data visualization to better understand and present data insights.
- Learn to manage and preprocess datasets, preparing them for AI model development.

Day 3: Introduction to Machine Learning Concepts

- Understand the basic concepts and terminologies of machine learning, such as supervised and unsupervised learning.
- Learn about different types of machine learning algorithms and their applications.
- Delve into the workflow of a typical machine learning project, from data collection to model evaluation.

Day 4: Building AI Models with Scikit-Learn

- Discover the Scikit-learn library and its role in simplifying machine learning tasks.
- Engage in practical exercises to implement simple models, including linear regression and decision trees.
- Learn to evaluate model performance using metrics such as accuracy, precision, and recall.

Day 5: Deep Learning Basics with TensorFlow and Keras

- Get introduced to deep learning and its difference from traditional machine learning approaches.
- Understand the basic structure of neural networks and the role of TensorFlow and Keras in building them.
- Develop a simple neural network model to solve a classification problem, gaining hands-on experience with deep learning.

Day 6: AI Model Evaluation and Optimization

- Explore advanced techniques for model evaluation and optimization, including cross-validation and hyperparameter tuning.
- Learn about overfitting and underfitting, and strategies to mitigate these issues.
- Understand the importance of model interpretability and how to communicate AI insights effectively.

Day 7: Deploying AI Models and Course Wrap-Up

- Discover the essentials of deploying AI models to production environments, including cloud-based solutions.
- Learn about the ethical considerations and challenges in AI deployment, focusing on fairness, accountability, and transparency.
- Recap the course content, discuss potential career paths as an AI specialist, and outline the next steps for further learning and certification.

Throughout this course, participants will engage in hands-on projects and real-world scenarios to consolidate their learning and prepare for the PCEI certification exam. By the end of the seven days, learners will have a solid foundation in AI and Python, ready to advance their careers in the field of artificial intelligence.