

KOENIG SOLUTIONS • COURSE OUTLINE

Microsoft AI Bootcamp for Freshers

Learn to build AI solutions with Python, machine learning, generative AI and Microsoft Azure cognitive services.

96 Hours

DURATION

5

MODULES

51

TOPICS

8

HANDS-ON ACTIVITIES

COURSE OVERVIEW

The Microsoft AI Bootcamp for Freshers is an immersive course designed to introduce newcomers to the fundamentals of artificial intelligence and machine learning, with a special focus on Microsoft AI technologies. Throughout the program, participants will gain hands-on experience with Microsoft Artificial Intelligence platforms and tools. Module 1 lays the groundwork with Python programming, covering everything from basic syntax and control structures to advanced topics like Object-oriented programming and data manipulation with libraries such as NumPy and Pandas. Module 2 delves into Machine Learning Essentials, equipping learners with knowledge on a variety of algorithms and data processing techniques. Module 3 introduces the basics of Microsoft Azure, while Module 4 and 5 dive deeper into the specific AI capabilities of Azure, teaching students how to design and implement AI solutions using Azure's cognitive services. By the end of the bootcamp, participants will be well-versed in Microsoft AI and ready to tackle real-world AI challenges.

Who Should Attend

The Microsoft AI Bootcamp for Freshers is designed to equip new entrants with foundational skills in Python, Machine Learning, and Azure AI. The bootcamp is ideal for:

Recent graduates with a degree in computer science or related fields

Aspiring data scientists and machine learning enthusiasts

Junior software developers looking to specialize in AI

IT professionals transitioning into AI and machine learning roles

Freshers interested in developing AI solutions on the Microsoft Azure platform

Technical professionals seeking to understand the basics of cloud services for AI

Career changers aiming to enter the tech industry with a focus on artificial intelligence

Non-technical professionals with a strong analytical background who aspire to gain technical AI skills

Final-year college students looking to enhance their employability with AI expertise

LEARNING OBJECTIVES

- Apply Python fundamentals including OOP, NumPy and Pandas
- Implement machine learning algorithms such as regression and clustering
- Apply feature engineering and natural language processing techniques
- Explain generative AI architecture and large language models
- Implement LLM systems using LangChain and retrieval-augmented generation
- Apply quantization techniques for fine-tuning open-source LLMs
- Implement computer vision and NLP solutions using Azure AI
- Plan and manage an Azure Cognitive Services solution

5 Modules, 51 Topics

01

12 hours

Introduction to Python

TOPICS

- Introduction
- Data Types
- Variables
- Decision Control Structures
- Operators
- Lists, Tuples, Sets, and Dictionaries
- Functions and Methods
- File Handling
- Modules
- Strings
- Iterators and Generators
- Regular Expressions
- Object-Oriented Programming (OOP) Concepts
- NumPy
- Pandas

02

20 hours

Machine Learning Essentials

TOPICS

- Overview of Machine Learning (ML)
- Machine Learning Environment Setup
- Core Machine Learning Concepts
- Feature Engineering (FE)
- Linear Regression
- Logistic Regression
- **Classification:** Support Vector Machines (SVM)
- **Classification:** Decision Trees & Random Forests
- **Classification:** Naïve Bayes
- Clustering (K-Means)
- Principal Component Analysis (PCA)
- Recommendation Systems (Collaborative Filtering)
- Natural Language Processing (NLP)

03

24 hours

6 Hands-ons

2 Labs

Generative AI Essentials

3.1: INTRODUCTION TO GENERATIVE AI

- Overview of Generative AI & Its Architecture
- Introduction to Generative Adversarial Networks (GANs)
- Applications of Generative AI Using the Transformer Library

3.2: WORKING WITH TEXT-BASED LARGE LANGUAGE MODELS (LLMs)

- Architecture of Large Language Models
- Types of Large Language Models (LLMs)
- Introduction to Ollama
- Role-Based Prompting for LLMs Using Ollama

3.3: WORKING WITH IMAGE-BASED LARGE LANGUAGE MODELS

- Overview of Image AI Models & Services

3.4: FINE-TUNING LLMs (QUANTIZATION) USING OPEN-SOURCE MODELS

- Introduction to Quantization
- Optimization of Model Weights (Data Types)
- Modes of Quantization

3.5: BASIC LLM SYSTEMS (RAG) USING LARGE LANGUAGE MODELS

- Introduction to Retrieval-Augmented Generation (RAG)
- Introduction to LangChain
- Concepts of Embedding, Retrieval, Chains, and Agents Using LangChain

04

8 hours

AI-900 – Microsoft Azure AI Fundamentals

TOPICS

- Implementing Computer Vision Solutions Using the User Interface
- Implementing Natural Language Processing Solutions Using the User Interface
- Implementing Knowledge Mining Solutions Using the User Interface
- Implementing Generative AI Solutions Using the User Interface

05

32 hours

Designing and Implementing a Microsoft Azure AI Solution

TOPICS

- Planning and Managing an Azure Cognitive Services Solution
- Implementing Computer Vision Solutions
- Implementing Natural Language Processing Solutions
- Implementing Knowledge Mining Solutions
- Implementing Generative AI Solutions

Practise What You Learn

#	MODULE	HANDS-ON	LAB
03	Generative AI Essentials	■ Creating a Basic GenAI Application Using the Transformer Library (Hugging Face) ■ Task-Based Text AI LLMs – Translation, Summarization, Sentence Similarity, etc. ■ Consuming Major Text AI LLMs Using Ollama (Qwen, Cohere, Falcon, LLaMA) ■ Applying Role-Based Prompting & Consuming LLMs Using Ollama (LLaMA) ■ Performing Multiple Tasks Using LLMs (Object Detection, Image Segmentation, Image Retrieval, Image Captioning, Visual Q&A, Zero-Shot Image Classification) ■ Fine-Tuning the LLaMA Model	■ Building a Simple LLM Application Using LangChain ■ Building a Chatbot Using LangChain

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

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