



Microsoft AI Engineer Program

**Go From Beginner to
AI-Confident in 6 Months**

Why AI Skills Matter Today

Artificial intelligence is driving how products are built, decisions are made, and businesses scale. From generative AI to AI Agents, organizations are actively integrating AI into their workflows.

Companies now need talent that can apply AI frameworks, work with the latest tools, and contribute to the development of intelligent systems.

The next phase of AI adoption will be led by technologies such as large language models, generative AI, and AI Agents that can automate tasks, support decision-making, and power new kinds of applications.

At the same time, **many aspiring professionals lack a clear starting point.** Without a structured path, it becomes difficult to move from basic knowledge to real-world application. To stay relevant, professionals need strong foundations, hands-on experience, and exposure to tools used in modern environments. **That is what enables the transition from learning AI to working with it.**

AI Trends in Numbers

56%

Higher wages are associated with AI skills globally

Source: PwC, 2025

70%+

Organizations using or exploring generative AI

Source: McKinsey, 2025

44%

Core skills expected to change due to AI

Source: World Economic Forum

What's In Store For You?



Structured AI Learning Path

Progress from foundational concepts to applied learning across data science, machine learning, deep learning, and generative AI



Beginner-Friendly Programming Fundamentals (Optional)

Build your confidence with an optional Basics of Programming module designed to support learners who need a stronger starting base



Real-World Learning

Apply your learning through 40+ demos, 15+ guided practices, 12+ hands-on course-end projects, including 3 capstones



20+ In-Demand Skills

Develop expertise in Python fundamentals, statistical analysis and hypothesis testing, supervised and unsupervised learning, model evaluation and validation, model optimization, object detection, recommendation systems, LLM fine-tuning, and more



Hands-On With 25+ Tools, Packages and Frameworks

Work with LangChain, Python, Jupyter Notebook, Pandas, NumPy, Matplotlib, Seaborn, scikit-learn, and more



Immersive Live Learning Experience

Join live, online interactive classes delivered by industry experts and Microsoft-certified trainers with peer-to-peer engagement on Slack, and dedicated cohort support



Industry-Recognized Credentials

Earn a joint program completion certificate from Microsoft and Simplilearn, plus Microsoft Learn certificates on the Microsoft Learn portal for the Microsoft-branded courses

Learning Path

Course Name



MS AI: Program Induction



MS AI: Basic of Programming (Optional)



MS AI: Python for AI



MS AI: Applied Data Science With Python



MS AI: Machine Learning Using Python



MS AI: Deep Learning Specialization



MS AI: Microsoft Azure AI Fundamentals AI-900



MS AI: Foundations - Build AI Agents and Extend Microsoft 365 Copilot



MS AI: Generative AI Literacy



MS AI: Microsoft AI Engineer Capstone

Elective Courses



MS AI: Natural Language Processing (NLP)



MS AI: Advanced Generative AI



MS AI: Masterclass on Agentic AI Solutions Using Copilot Studio and AutoGen

Tools, Packages and Frameworks Covered



Development & Programming Environments

- python™
- jupyter
- Visual Studio Code
- GitHub Copilot



Data Science & Machine Learning

- pandas
- NumPy
- SciPy
- scikit learn
- SciKeras
- SymPy
- Datetime
- ROUGE



Visualization

- matplotlib
- seaborn



Deep Learning Frameworks

- Keras
- PyTorch
- TensorFlow



Generative AI

- LangChain
- Hugging Face
- OpenAI API
- CHROMADB
- gradio
- Flan-T5 XXL
- PyPDFLoader
- ChatGPT
- DALL-E



Agentic AI

- AutoGen
- Microsoft Copilot Studio



Specialized AI Domains

- NLTK
- spaCy
- GENSIM
- librosa
- Pydub
- OpenCV

*Disclaimer: The tools, libraries, and packages covered, as well as depth of coverage in this Program &/or information in this Brochure are subject to changes &/or updates without any notice.

COURSE 1

Program Induction

Begin your learning journey with an induction that familiarizes you with the course structure, platform, and support system. Understand the program outcomes and prepare to begin your hands-on AI learning.

COURSE 2

Basics of Programming

This course helps build a strong foundation in how computers work and how programming enables problem-solving. It starts with core concepts such as binary logic, Boolean algebra, and digital systems, then explores how data is represented and how hardware, software, and operating systems interact. It further introduces key programming concepts, including how code executes, followed by hands-on fundamentals like writing simple programs, using variables and operators, and applying conditions and loops to build logic.

Skills Developed:

- ✔ Computational thinking
- ✔ Computer architecture basics
- ✔ Code execution understanding
- ✔ Digital logic fundamentals
- ✔ Data representation and encoding

COURSE 3

Python for AI

This course helps build practical programming skills using Python for AI. It starts with core programming concepts and environment setup, followed by fundamentals such as syntax, variables, data types, and operators. You will explore data structures, conditional logic, and loops to work with data effectively. The course further covers functions, object-oriented programming, file handling, and error management, before introducing AI-powered coding tools to write, refine, and optimize code while understanding key ethical considerations.

Skills Developed:

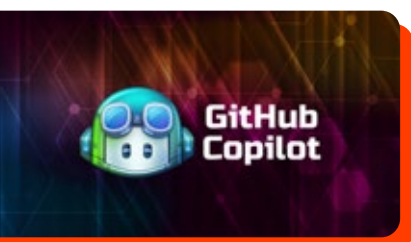
- ✓ Code structuring
- ✓ Debugging and testing
- ✓ Data manipulation
- ✓ Conditional logic
- ✓ Lambda functions
- ✓ OOP basics

Course-End Project:



Analyzing Customer Orders Using Python

Analyze customer order data using Python data structures to organize transactions, identify purchasing patterns, and generate practical business insights from order records.



Building a Python Adventure Game With GitHub Copilot

Build a text-based adventure game using Python and GitHub Copilot to apply control flow, functions, and interactive command-line programming concepts.

COURSE 4

Applied Data Science With Python

This course helps you build a strong foundation in data science, starting with core concepts, real-world applications, and how data is used to drive decisions. You will learn how to analyze and interpret data, uncover patterns through visualization, and apply essential mathematics, statistics, and probability concepts to support your insights. The course also focuses on preparing and refining data through data wrangling and feature engineering, helping you work with real-world datasets more effectively.

Skills Developed:

- ✔ Data processing and data wrangling
- ✔ Statistical analysis and hypothesis testing
- ✔ Exploratory data analysis (EDA)
- ✔ Data visualization
- ✔ Feature engineering

Course-End Project:



Sales Analysis

Analyze quarterly sales data across Australian states to clean datasets, visualize trends, and generate insights for better business decision-making.



Marketing Campaigns

Explore marketing campaign data to perform exploratory analysis, test hypotheses, engineer features, and uncover factors that influence customer acquisition outcomes.

COURSE 5

Machine Learning Using Python

This course introduces you to the core concepts of machine learning and how models are built to solve business problems. You will explore supervised learning techniques, including regression and classification, and understand how to evaluate, validate, and improve model performance. The course also covers ensemble methods and unsupervised learning approaches such as clustering, dimensionality reduction, and anomaly detection. You will further learn how recommendation systems work and how machine learning is applied across different use cases, helping you build a strong foundation in developing and applying machine learning models.

Skills Developed:

- ✔ Supervised learning
- ✔ Ensemble learning
- ✔ Model evaluation and validation
- ✔ Unsupervised learning
- ✔ Dimensionality reduction
- ✔ Hyperparameter tuning and regularization
- ✔ Recommendation systems

Course-End Project:



Employee Turnover Analytics

Analyze employee turnover data to identify attrition drivers, cluster employee segments, build predictive models, and recommend targeted retention strategies.



Creating Cohorts of Songs

Explore song data to clean features, perform clustering, and create meaningful cohorts that support music pattern analysis and recommendation insights.

COURSE 6

Deep Learning Specialization

This course introduces you to the fundamentals of deep learning, including its evolution, key concepts, and applications. You will learn how neural networks work, covering perceptrons, deep neural networks, forward and backward propagation, and optimization techniques. The course also explores model development using deep learning frameworks and focuses on improving performance through regularization and tuning. You will further study specialized architectures such as convolutional neural networks, recurrent neural networks, and transformer models, along with concepts like transfer learning, object detection, and autoencoders, helping you understand how deep learning models are built and applied across different scenarios.

Skills Developed:

- ✔ CNN
- ✔ RNN, transformers
- ✔ Hyperparameter tuning
- ✔ Transfer learning
- ✔ Model optimization
- ✔ Object detection

Course-End Project:



Home Loan Data Analysis

Analyze historical home loan data to preprocess imbalanced datasets and build a deep learning model for loan default prediction.



Lending Club Loan Data Analysis

Analyze Lending Club loan data to transform features, handle class imbalance, and build a deep learning model for default prediction.

COURSE 7

Microsoft Azure AI Fundamentals AI-900

This course helps you identify the right Azure AI tools, understand their capabilities, and prepare for the Azure AI Fundamentals (AI-900) certification exam. In this course, you explore core AI concepts, including machine learning, computer vision, natural language processing, and generative AI, along with the principles of responsible AI. You also gain clarity on common AI workloads and how Azure services enable solutions across business scenarios.

Skills Developed:

- ✔ NLP
- ✔ Computer vision concepts
- ✔ GenAI

COURSE 8

Foundations - Build AI Agents and Extend Microsoft 365 Copilot

This course helps you learn how to enhance Copilot using agents, plugins, and connectors to integrate enterprise data, automate workflows, and improve productivity. It introduces key extensibility approaches, helping you choose the right development path while ensuring data security and responsible AI practices. By the end, you will be able to design, optimize, and extend Copilot solutions that align with various organizational goals.

Skills Developed:

- ✔ Explore possibilities with AI agents

COURSE 9

Generative AI Literacy

This course introduces how generative AI models work, explores prompt engineering techniques, and examines the role of open-source tools in building AI solutions. It also covers responsible use of GenAI, including bias, security, and ethical considerations, along with emerging trends shaping the future of AI. In addition, you will gain hands-on exposure to working with GPT-based tools, exploring their capabilities across tasks such as content creation, analysis, and workflow automation, and understanding how generative AI is applied across different business functions.

Skills Developed:

- ✔ Prompt engineering

COURSE 10

Microsoft AI Engineer Capstone

The program concludes with a capstone project, offering an opportunity to integrate the knowledge gained across all the courses. Under the guidance of expert mentors, you will take on a real-world business challenge and apply AI and GenAI concepts to build an AI solution. The capstone not only tests technical and strategic skills but also helps you build a portfolio-worthy project that demonstrates your job readiness and expertise to potential employers.

Skills Developed:

- ✔ Recommendation systems
- ✔ Image classification
- ✔ Exploratory data analysis
- ✔ Object detection
- ✔ Time series forecasting
- ✔ Convolutional neural networks

Course-End Project:



Autonomous Driving

Build an autonomous driving solution that detects and localizes vehicles in images while analyzing autopilot usage and its impact on road safety.



Preserving Heritage: Enhancing Tourism With AI

Build an AI-powered tourism solution that classifies heritage structures and recommends places of interest using image intelligence and recommendation models.



Sales Forecasting

Analyze restaurant sales data to engineer features, forecast item demand, and support better planning through time series and machine learning models.

Elective Courses

Natural Language Processing (NLP)

This course will help you learn how to preprocess and analyze text data, perform text classification, and represent text using vectorization techniques.

It covers word embeddings, machine translation, and document search, along with sequence and attention-based models used in modern NLP.

In addition, you will explore audio analytics, including signal processing, feature extraction, speech recognition, and audio generation, helping you understand how language and audio data are processed and modeled.



Advanced Generative AI

This course builds a deeper understanding of generative AI by exploring model types such as autoencoders, GANs, transformers, and retrieval-augmented generation. You will learn how large language models work, including their architecture, training process, and applications, along with frameworks used to build and manage AI-driven workflows.



Course-End Project:



Crafting an AI-Powered HR Assistant

Build an AI-powered HR assistant that parses PDF documents, creates vector embeddings, and answers user queries through a conversational chatbot interface.



Creating Designs by Leveraging OpenAI and Gradio UI

Create AI-powered design solutions by transforming text prompts into images through OpenAI integration and an interactive Gradio-based user interface.

Masterclass on Agentic AI Solutions Using Copilot Studio and AutoGen

Learn directly from industry experts through a live online session and explore low-code tools like Copilot Studio to accelerate development.

This masterclass will help you explore open-source frameworks such as AutoGen and learn how to apply agentic AI solutions in real-world business environments.



Program Trainers



Isaac Whittaker

10+ years of experience

Founder & CTO



Keino Baird

15+ years of experience

Chief Operating Officer



Abhilash Chauhan

7+ years of experience

Data Science Manager



Wenbiao William Zhang

15+ years of experience

Seasoned Research Scientist





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