UBERLERNEN ARC

AI + CLOUD ENGINEERING PROGRAM

PROGRAM
CURRICULUM

AI Cloud Engineering Bootcamp

Build real-world AI and cloud systems.

5 Weeks
CORE BOOTCAMP

Instructor-Led
LIVE SESSIONS

Hands-On Labs
BUILD, DON'T JUST STUDY

PROGRAM OVERVIEW

About the Program

The Uberlernen AI Cloud Engineering Bootcamp begins with an **intensive five-week core bootcamp** and continues with extended learning, mentorship, and guided support designed to help professionals build practical skills in cloud infrastructure, enterprise AI systems, and AI agent development.

The program combines cloud engineering fundamentals, agentic AI development, enterprise AI architectures, and career readiness. Participants learn by building real systems rather than studying theory alone.

Beyond the core bootcamp, students continue learning through weekly technical masterclasses, 1:1 assistance with instructors, and enterprise-grade hands-on labs and projects.

SIGNATURE COMPONENT

Interview Hero

A strong focus is placed on helping participants clear technical interviews and stand out in a crowded job market. In Interview Hero, students learn how to present their skills, explain projects clearly, and position themselves effectively during interviews.

LEARNING APPROACH

Throughout the program, participants will

01	**Design** cloud infrastructure environments
02	**Build** AI agents using Copilot Studio
03	**Implement** AI systems that interact with enterprise data
04	**Deploy** scalable container-based workloads
05	**Understand** enterprise architecture and security models

Each week includes guided labs and architecture walkthroughs to ensure practical understanding.

CURRICULUM

The Five-Week Program

01 **Cloud Foundations & Infrastructure** — 8 MOD · 6 LABS
Understand how modern cloud platforms operate and deploy real infrastructure components.

02 **Agentic AI with Copilot Studio & Agent Architecture** — 7 MOD · 8 LABS
Build AI agents that automate real business workflows securely.

03 **Enterprise AI Systems, Knowledge Applications & Secure AI** — 6 MOD · 7 LABS
Design AI systems that interact with enterprise knowledge sources.

04 **Advanced Cloud-Scale Systems & Deployment** — 7 MOD · 5 LABS
Deploy AI applications using scalable and reliable cloud infrastructure.

05 **Career Acceleration & Industry Positioning** — 5 MOD · 4 LABS
Prepare participants to position their skills effectively for cloud and AI engineering roles.

DELIVERY FORMAT

- Instructor-led sessions
- Guided hands-on labs
- Architecture walkthroughs
- Career development workshops

PRIMARY PLATFORMS

- Microsoft Azure
- Microsoft Copilot Studio
- Amazon Web Services
- Amazon Bedrock
- AI Foundry

Weekly technical masterclasses

1:1 assistance with instructors

Enterprise-grade labs & projects

Interview Hero career prep

01

WEEK 01 / 05

Cloud Foundations & Infrastructure

Understand how modern cloud platforms operate and deploy real infrastructure components.

8 MODULES | 6 HANDS-ON LABS

KEY TOPICS

01.1 Cloud computing fundamentals

- Cloud service models: IaaS, PaaS, SaaS
- Shared responsibility model for cloud security

01.2 Multi-cloud landscape

- Azure vs AWS vs GCP comparison

01.3 Core Azure architecture

- Subscriptions, resource groups, resource hierarchy
- Regions, availability zones, and availability sets

01.4 Infrastructure services

- Compute services
- Storage services and advanced storage strategies
- Virtual networking

01.5 Infrastructure deployment patterns

- Virtual machines
- VM scale sets
- App Services
- Serverless services

01.6 Identity and security

- Microsoft Entra ID fundamentals
- Role-based access control
- Governance and naming conventions

01.7 Secure infrastructure access

- Bastion hosts
- Private network architecture

01.8 Infrastructure design principles

- High availability architecture
- Disaster recovery strategies
- Resource organization and governance

HANDS-ON PRACTICE

LAB 01
Deploy and manage Azure virtual machines

LAB 02
Configure virtual networks and subnets

LAB 03
Implement identity and access control using RBAC

LAB 04
Manage identities with Entra ID

LAB 05
Configure secure infrastructure access using Bastion

LAB 06
Design a high availability infrastructure layout

02

WEEK 02 / 05

Agentic AI with Copilot Studio & Agent Architecture

Build AI agents that automate real business workflows securely.

7 MODULES | 8 HANDS-ON LABS

KEY TOPICS

02.1 Introduction to generative AI and agentic systems

- Understanding large language models
- Embeddings and vector search fundamentals
- Prompt engineering principles

02.2 Agent architecture concepts

- Intent detection
- Conversation design
- Knowledge grounding

02.3 Microsoft Copilot Studio

- Agent creation and conversational flows
- Topics and generative AI responses
- Agent nodes and entities
- Agent actions and tool usage

02.4 Business process automation with Power Platform

- Power Automate workflows
- Dataverse integration
- Connecting agents to enterprise processes

02.5 Responsible AI and governance

- Security and compliance considerations for enterprise AI

02.6 Agent design patterns

- Single agent vs multi agent architectures
- Supervisor agents and task routing
- Agent orchestration patterns

02.7 Context and memory management

- Short term conversational memory
- External knowledge grounding
- Managing agent context windows

HANDS-ON PRACTICE

LAB 01
Create AI agents using Copilot Studio

LAB 02
Design conversational topics and flows

LAB 03
Create agent actions and workflow integrations

LAB 04
Connect agents to Dataverse data sources

LAB 05
Configure role based access for AI agents in enterprise environments

LAB 06
Design a multi agent workflow for business task automation

LAB 07
Automate business tasks using Power Automate

LAB 08
Deploy AI agents inside Microsoft Teams

03

WEEK 03 / 05

Enterprise AI Systems, Knowledge Applications & Secure AI

Design AI systems that interact with enterprise knowledge sources.

6 MODULES | 7 HANDS-ON LABS

KEY TOPICS

03.1 Retrieval Augmented Generation (RAG) architecture

- Knowledge ingestion pipelines
- Embedding models and indexing strategies
- Vector search systems

03.2 Enterprise AI design patterns

- Private knowledge assistants
- Document intelligence workflows
- Multimodal AI use cases

03.3 Azure AI ecosystem overview

- Azure AI services and model deployment
- Prompt orchestration strategies

03.4 AI performance considerations

- Model optimization techniques
- Efficient fine-tuning approaches
- Local and edge AI deployment scenarios

03.5 Enterprise AI security fundamentals

- Prompt injection risks
- Data leakage risks in LLM applications
- Secure grounding with enterprise data sources

03.6 Enterprise RAG architecture

- Secure document ingestion pipelines
- Chunking and embedding strategies
- Access controlled vector search

HANDS-ON PRACTICE

LAB 01
Build a knowledge assistant using enterprise documents

LAB 02
Index enterprise data using vector search techniques

LAB 03
Create AI-powered document intelligence workflows

LAB 04
Add security guardrails to enterprise AI agents

LAB 05
Configure role based access for enterprise knowledge responses

LAB 06
Evaluate and improve AI agent reliability using prompt testing

LAB 07
Improve prompt performance for enterprise use cases

04

WEEK 04 / 05

Advanced Cloud-Scale Systems & Deployment

Deploy AI applications using scalable and reliable cloud infrastructure.

7 MODULES | 5 HANDS-ON LABS

KEY TOPICS

04.1 Containerization fundamentals

- Docker architecture and container lifecycle
- Container images and registries

04.2 Modern cloud compute patterns

- Container applications
- Kubernetes concepts
- Serverless compute services

04.3 Containerization vs virtualization comparison

04.4 Infrastructure automation concepts

- Environment configuration and deployment patterns

04.5 Security and governance

- Authentication and access control
- OAuth concepts
- Secure API access

04.6 Cost management and optimization

- Cloud cost modeling
- Monitoring and operational logging

04.7 Pareto Programming

- Focus on critical configuration and code that produces real results

HANDS-ON PRACTICE

LAB 01
Containerize applications using Docker

LAB 02
Push container images to container registries

LAB 03
Deploy container workloads in Azure

LAB 04
Configure monitoring and logging

LAB 05
Implement scaling and high availability patterns

05

WEEK 05 / 05

Career Acceleration & Industry Positioning

Prepare participants to position their skills effectively for cloud and AI engineering roles.

5 MODULES | 4 HANDS-ON LABS

KEY TOPICS

05.1 Portfolio and project presentation
- Presenting technical projects clearly

05.2 Resume strategy
- Structuring and quantifying technical achievements

05.3 LinkedIn positioning
- Profile optimization for industry visibility

05.4 Opportunity generation strategies
- Professional networking approaches

05.5 Interview preparation
- Technical interview frameworks
- Architecture and system design discussions

HANDS-ON PRACTICE

LAB 01
Refine and present portfolio projects

LAB 02
Optimize resume and LinkedIn profiles

LAB 03
Practice technical interview scenarios

LAB 04
Participate in mock technical discussions

OUTCOMES

What You'll Be Able to Do

By the end of the bootcamp, participants will be able to:

01

Design and deploy production ready cloud infrastructure environments

02

Build Agentic AI apps and integrate them with enterprise workflows

03

Develop AI systems that interact with enterprise data using modern knowledge retrieval techniques

04

Understand enterprise architecture patterns used in real AI cloud systems

05

Confidently explain architecture decisions in technical interviews

06

Position their skills for cloud and AI engineering roles in the job market

A practical foundation for professionals transitioning into modern cloud and AI engineering roles.

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