



MICROSOFT TRAINING

Multi Agent Systems Course

Learn to design, develop, and deploy intelligent multi-agent systems. Build autonomous, collaborative software solutions for complex problems.

DURATION

40 hours

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

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COURSE OVERVIEW

This intermediate-level Multi-Agent Systems (MAS) course, delivered with a focus on Microsoft technologies, is meticulously designed to equip professionals with the knowledge and practical skills to architect, develop, and deploy intelligent autonomous systems. Participants will delve into the fundamental principles of agent-oriented programming, explore various agent architectures, and understand how to design agents that can perceive, reason, and act within complex environments. The curriculum emphasizes practical application using relevant tools and platforms within the Microsoft Azure ecosystem, enabling learners to build sophisticated solutions for real-world challenges.

By completing this 40-hour course, you will master the art of creating robust and cooperative multi-agent systems, capable of distributed problem-solving and emergent intelligence. You will learn to implement agent communication protocols, coordination mechanisms, and negotiation strategies that enhance system efficiency and adaptability. The professional benefits extend to being able to tackle complex automation tasks, optimize decision-making processes, and innovate in fields requiring smart, self-organizing software entities, ultimately positioning you as a leader in advanced AI and distributed computing solutions.

Duration	40 hours
Level	Intermediate
Vendor	Microsoft

COURSE CURRICULUM

- 01 Module 1: Introduction to Multi-Agent Systems**
 - Definition and Characteristics of Agents
 - Agent Paradigms and Architectures (Reactive, Deliberative, Hybrid)
 - Properties of Multi-Agent Systems
 - Applications and Use Cases of MAS
- 02 Module 2: Agent Communication and Interaction**
 - Agent Communication Languages (ACLs) - FIPA-ACL
 - Message Passing and Protocols
 - Knowledge Representation for Agents
 - Agent Ontologies and Semantics
- 03 Module 3: Agent Coordination and Cooperation**
 - Coordination Mechanisms (e.g., Contract Net Protocol)
 - Cooperation and Competition in MAS
 - Distributed Problem Solving
 - Coalition Formation and Negotiation Strategies
- 04 Module 4: Agent Platforms and Development**
 - Overview of Agent Development Frameworks
 - Designing and Implementing Agents
 - Agent Deployment and Management Principles
 - Case Studies of MAS Implementations
- 05 Module 5: Advanced Topics in Multi-Agent Systems**

- Learning in Multi-Agent Systems
- Trust and Reputation in MAS
- Agent-based Simulation and Modeling
- Ethical Considerations in MAS Development

06 Module 6: Building and Deploying MAS on Microsoft Azure (Practical)

- Leveraging Azure Services for MAS Components (e.g., Azure Functions, Event Hubs, Cosmos DB)
- Implementing a Simple MAS Scenario using Microsoft Technologies
- Monitoring and Troubleshooting MAS Deployments
- Best Practices for Scalable MAS Architecture

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **AI Solutions Architect (focus on distributed intelligence)**
- > **Autonomous Systems Engineer**
- > **Intelligent Automation Specialist**

FREQUENTLY ASKED QUESTIONS

Q: What foundational knowledge or prerequisites are recommended before enrolling in this Multi-Agent Systems course?

While specific prior MAS experience is not required, participants should have a solid understanding of object-oriented programming principles, data structures, and basic artificial intelligence concepts. Familiarity with cloud computing fundamentals, particularly with Microsoft Azure, will also be highly beneficial for the practical application modules and understanding deployment strategies.

Q: How will this course specifically enhance my ability to design and implement intelligent automation solutions within a corporate environment?

This course provides a robust framework for understanding how distributed, intelligent entities can collaborate to achieve complex objectives. You'll gain skills in designing autonomous agents, defining their interactions, and orchestrating their behavior to automate intricate business processes, optimize resource allocation, and create self-healing or self-optimizing systems. This directly translates to developing advanced, resilient automation capabilities and smarter decision-support systems in enterprise settings.

Q: Does this course cover any specific Microsoft AI frameworks or platforms relevant to building multi-agent systems?

Yes, while the core concepts of Multi-Agent Systems are vendor-agnostic, this course integrates practical considerations for leveraging Microsoft Azure services. We will explore how components like Azure Functions can host agent logic, Azure Event Grid/Hubs can facilitate inter-agent communication, and Azure Cognitive Services can provide AI capabilities for individual agents, demonstrating how to build scalable and robust MAS within the Microsoft ecosystem.

ABOUT COMPUTER PRIDE



East Africa's Premier IT Training Center

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+

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READY TO ENROL?

Take the next step in your technology career.

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