FIREFLY

CISCO PARTNER Platinum Learning

# AI for Network Engineers • AI-NE 2.0

**DURATION:** 3 DAYS | **PRICE:** USD 2795 | **CLCs:** 28 | **CE:** 24

**COURSE CODE:** AI-NE | **FORMAT:** Kit & Lab

## COURSE DESCRIPTION

AI has reached network operations from two directions at once. Engineers are asked to use AI assistants on production networks and to build the networks that AI workloads run on. Both demand an accurate understanding of how the technology works, where it fails and how to keep a human in control of every change.

AI-NE is an official Cisco class, developed exclusively by Firefly, that delivers a three-day, instructor-led learning experience covering AI from the inside of a language model to the fabric of an AI data center. Through thirteen lessons and ten hands-on labs, students progress from AI fundamentals, LLM mechanics, prompt engineering and grounding, to applying AI on Cisco control planes through the Model Context Protocol (MCP) for monitoring, configuration, troubleshooting and compliance, and then to the network for AI: lossless Ethernet, Cisco AI PODs, AI Factories, Nexus HyperFabric and Cisco AgenticOps.

Designed around real-world operations, the course follows three ground rules: read-only access by default, a human approves and acts, and every answer is grounded in the network's own systems of record and verified before anyone acts. About 9 hours of labs use the Cisco DevNet Catalyst Center sandbox and a prepared data pack, so every answer can be checked.

## PREREQUISITES

Working knowledge of enterprise networking (IP addressing, routing, switching and VLANs) and the Cisco IOS XE CLI is recommended. Basic familiarity with Cisco Catalyst Center and comfort running commands in Windows PowerShell or a macOS terminal are helpful. Prior AI, machine learning or programming experience is not required.

## WHO SHOULD ATTEND

This course is designed for professionals who operate, design or support Cisco networks, including:

# AI for Network Engineers • AI-NE 2.0

- Network Engineers
- Network Operations (NetOps) Engineers
- Network Architects and Designers
- Data Center and AI Infrastructure Engineers
- Network Automation and DevOps Engineers
- Security Engineers responsible for AI use in operations
- Systems Engineers and Technical Consultants supporting Cisco AI solutions
- IT Managers planning AI adoption in network operations

## BUSINESS JUSTIFICATION DESCRIPTION:

Network teams are being asked to adopt AI faster than they can be trained to use it safely. Customers and partners need engineers who understand how AI works, can apply it to Cisco control planes without putting production at risk, and can design and operate the infrastructure AI workloads depend on. AI-NE v2.0 builds that capability on Cisco's own platforms and guidance: Catalyst Center with its Intent API, AI Assistant and MCP server, Cisco AI Defense, Cisco AI PODs and Secure AI Factory, Nexus HyperFabric and Cisco AgenticOps in Cisco Cloud Control. This version replaces the v1.0 prompt-focused content with current, publicly available Cisco material, adds lessons on the network for AI and AgenticOps, and rebuilds the labs around the Cisco DevNet Catalyst Center sandbox. The result accelerates customer adoption of Cisco AI networking solutions, reduces operational risk and builds the skills needed to support AI-ready infrastructure.

## OUTLINE

**Detailed Course Structure**

### Day 1 – Foundations of How AI Works

**1.1 – The AI Landscape for Infrastructure Teams**

- History of AI and how networking absorbed each wave
- Predictive, generative and agentic AI
- Machine learning in networking and in Cisco tooling

**1.2 – Inside the LLM**

- Tokens, embeddings and attention
- The context window and its cost
- Hard limits, hallucination and sampling

**1.3 – Prompt Engineering and Grounding**

- Patterns, templates and common pitfalls
- Grounding with retrieval (RAG), end to end
- Structured output and trust before action

**1.4 – Secure and Responsible AI**

- Sanitizing data before it leaves
- Least privilege and prompt injection
- Where Cisco AI Defense fits

- **Hands-on Labs:** Lab 1, What the Model Is Doing; Lab 2, Prompt Patterns for NetOps; Lab 3, Grounded or Guessing

### Day 2 – AI in Network Operations

**2.1 – The Connective Tissue: MCP and Tool Use**

- MCP as a standard interface
- One tool call end to end
- Cisco's MCP servers and read-only discipline

**2.2 – AI for Monitoring**

- Asking the network in plain language
- Campus and data center, one method
- What a trustworthy answer cites

**2.3 – AI for Configuration**

- Drafting configuration from intent
- Read-validate before proposing
- What gets attached to the change approval

**2.4 – AI for Troubleshooting**

- The closed loop and correlating evidence
- Ranking hypotheses
- AI drafts, the engineer acts

**2.5 – AI for Compliance**

- Structural versus text comparison
- Scoring findings by risk
- Why a deterministic baseline matters

• **Hands-on Labs:** Lab 4, Safe to Paste; Lab 5, Intent to Config, Then Validate It; Lab 6, Live State and Monitoring at Scale; Lab 7, Compliance, Audit and Score

## Day 3 – The Network for AI, and Agentic Operations

**3.1 – Why the Network Is the Bottleneck for AI**

- AI traffic patterns and job completion time
- Lossless Ethernet and the AI POD QoS policy
- Load balancing, rails and fabric validation

**3.2 – AI Factories and Cisco's AI Infrastructure**

- Scale-up, scale-out and deployment models
- Sizing an AI POD back end
- Nexus HyperFabric and Cisco reference architectures

**3.3 – Availability and Real-World Integration Challenges**

- An honest availability map
- Data-handling policy, least privilege and change control
- Ownership, cost and latency at scale

**3.4 – Where Cisco Is Taking Operations: AgenticOps**

- AgenticOps, from signal to action
- AgenticOps in Cisco Cloud Control
- Today versus emerging

• **Hands-on Labs:** Lab 8, Logs to Root Cause; Lab 9, Change Pack and Incident Review; Lab 10, Automation Artifacts

**Instructor Led Training**

To view the schedule and secure your site

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