# Implementing Automation for Cisco Enterprise Solutions

**Duration: 3 Days    Course Code: ENAUI    Version: 1.2    Delivery Method: Virtual Learning**

## Overview:

**Implementing Automation for Cisco Enterprise Solutions (ENAUI)** v.1.2 teaches you how to implement Cisco Enterprise automated solutions, including programming concepts, orchestration, telemetry, and automation tools.
This course highlights the tools and the benefits of leveraging programmability and automation in the Cisco-powered Enterprise Campus and WAN. You will also examine platforms including IOS XE software for device-centric automation, Cisco DNA Center for the intent-based enterprise network, Cisco Software-Defined WAN, and Cisco Meraki. Their current ecosystem of APIs, software development toolkits, and relevant workflows are studied in detail together with open industry standards, tools, and APIs, such as Python, Ansible, Git, JSON/YAML, NETCONF/RESTCONF, and YANG.
This course will help you
Gain high-demand skills using modern programming languages, APIs, and systems such as Python, Ansible, and Git to automate, streamline, and enhance business operations
Acquire the skills and knowledge to customize tools, methods, and processes that improve network performance and agility
Earn 24 CE credits toward recertification

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected.  Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

## Target Audience:

Network engineers who need to use modern programming, automation and orchestration tools such as Python, Ansible and Git to automate, streamline and enhance their Cisco enterprise network.

## Objectives:

■ **After completing this course you should be able to:**

■ Get familiar with different API styles (REST, RPC) and synchronous and asynchronous API requests

■ Learn how to use Postman software development tool in order to test the API calls

■ Learn how to automate repetitive tasks using Ansible automation engine

■ Explore a Python programming language, Python libraries and Python virtual environments and learn how can they be used for automation of network configuration tasks

■ Get introduced to GIT version control system and its common operations

■ Learn how to leverage the various models and APIs of the Cisco IOS XE platform to perform day-zero operations, improve troubleshooting methodologies with custom tools, augment the CLI using scripts, and integrate various workflows using Ansible and Python

■ Learn about the paradigm shift of model-driven telemetry and the building blocks of a working solution

■ Learn how to leverage the tools and APIs to automate Cisco DNA infrastructure managed by Cisco DNA Center™

■ Demonstrate workflows (configuration, verification, health checking, and monitoring) using Python, Ansible, and Postman

■ Understand Cisco SD-WAN solution components, implement a Python library that works with the Cisco SD-WAN APIs to perform configuration, inventory management, and monitoring tasks, and implement reusable Ansible roles to automate provisioning new branch sites on an existing Cisco SD-WAN infrastructure

■ Learn how to leverage the tools and APIs to automate Cisco Meraki managed infrastructure and demonstrate workflows (configuration, verification, health checking, monitoring) using Python, Ansible, and Postman

## Prerequisites:

**Attendees should meet the following prerequisites:**

- Basic programming language concepts
- Basic understanding of virtualization
- Ability to use Linux and CLI tools, such as Secure Shell (SSH) and bash
- Networking knowledge equivalent to the CCNP level
- Foundational understanding of Cisco DNA, Meraki, and Cisco SD-WAN
- ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies

## Testing and Certification

**Recommended as preparation for the following exams:**

- **300-435** - Automating Cisco Enterprise Solutions (ENAUTO) exam After you pass **300-435 ENAUTO**, you earn the **Cisco Certified DevNet Specialist - Enterprise Automation and Programmability** certification, you will also satisfy the concentration exam requirements for both the CCNP Enterprise certification and the Cisco Certified DevNet Professional certification.

## Content:

**Network Programmability Foundation**

- Version Control with GIT
- Introduction to Network-Based APIs
- Characteristics of API styles (REST and RPC)
- Synchronous and Asynchronus API Requests
- Python Fundamentals
- Python Modules
- Introduction to Ansible for Network Automation
- Cisco DevNet Resources

**Automating APIs and Protocols**

- JavaScript Object Notation
- Extensible Markup Language
- YAML Data Serialization Standard
- Introduction to YANG
- Types of YANG Models
- Introduction to NETCONF
- Introduction to RESTCONF
- Postman for REST API Consumption

**Managing Configuration with Python and Ansible**

- Enterprise LAN Network Automations Overview

**Implementing On-Box Programmability and Automation with Cisco IOS XE Software**

- Introduction to Programmability Features on Cisco IOS XE

**Implementing Model-Driven Telemetry**

- Data Models on Cisco IOS XE Software
- Streaming Telemetry
- Streaming Telemetry Models
- Streaming Telemetry Transport Protocols

**Day-Zero Provisioning with Cisco IOS-XE**

- Day-Zero Operations
- iPXE Overview
- Cisco Network Plug and Play Overview
- ZTP Overview

**Implementing Automation in Enterprise Networks**

- Cisco Intent-Based Network Overview
- Cisco DNA Center Architecture
- Cisco DNA Center APIs

**Building Cisco DNA Center Automation with Python**

- Explore Cisco DNA Center Libraries

**Automating Operations using Cisco DNA Center**

- Introduction to Cisco DNA Center Assurance Workflows
- Cisco DNA Center Event Webhooks

**Introducing Cisco SD-WAN Programmability**

- SD-WAN Overview
- Cisco SD-WAN Architecture
- Cisco SD-WAN REST API Overview

**Building Cisco SD-WAN Automation with Python**

- Working with Templates in Cisco SD-WAN
- Python Workflows for Cisco SD-WAN

**Building Cisco SD-WAN Automation with Ansible**

- Shaping SD-WAN Overlay with Policies
- Using Ansible with Cisco SD-WAN APIs

**Automating Cisco Meraki**

- Cisco Meraki Architecture and Automation Capabilities
- Cisco Meraki REST API Overview

**Implementing Meraki Integration APIs**

- Cisco Meraki Integrations Overview
- Location Scanning APIs
- Cisco Meraki Camera APIs
- Cisco Meraki Captive Portals
- Cisco Meraki Wireless Health
- Explore Cisco Meraki Webhook Alerts

**Labs**

- Automate Networks with Netmiko
- Use Postman for REST API Consumption
- Use Ansible to Configure and Verify Device Configuration
- Implement On-Box Programmability and Automation with Cisco IOS XE Software
- Use Python on Cisco IOS XE Software
- Implement Streaming Telemetry with Cisco IOS XE
- Perform Administrative Task Using the Cisco SD-WAN API
- Build, Manage and Operate Cisco SD-WAN Programmatically
- Consume SD-WAN APIs Using the uri Module
- Manage Policies with Ansible
- Build Reports Using Ansible-Cisco SD-WAN Role
- Implement Cisco Meraki API Automation
- Explore Cisco Meraki Integration APIs
- Explore Cisco Meraki Webhook Alerts

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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