



CISCO TRAINING

Programming for Network Engineers

Elevate your network engineering skills with programming. Learn to automate Cisco network tasks efficiently.

DURATION

48 hours

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

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COURSE OVERVIEW

This intermediate 48-hour "Programming for Network Engineers" course, offered by Cisco and Computer Pride, is meticulously designed to equip network professionals with the essential programming skills required to automate, manage, and scale modern network infrastructures. In today's rapidly evolving IT landscape, traditional manual network configurations are inefficient and prone to errors. This course bridges the gap between traditional networking and software development, enabling engineers to leverage the power of code for network operations. Participants will dive deep into foundational programming concepts using Python, learn to interact with network devices via modern APIs like RESTCONF and NETCONF, and master data models such as YANG. The curriculum covers practical applications of automation tools like Ansible and explores Software-Defined Networking (SDN) principles, providing hands-on experience in scripting device configurations, collecting operational data, and implementing continuous integration/continuous deployment (CI/CD) pipelines for network changes. Upon completion, you will possess a robust skill set that dramatically enhances network agility, reduces operational costs, and future-proofs your career in an increasingly automated world.

Duration	48 hours
Level	Intermediate
Vendor	Cisco

COURSE CURRICULUM

01 Module 1: Foundations of Network Programmability and Python

- Introduction to Network Programmability and its benefits
- Review of Python fundamentals for network scripting
- Python data structures, functions, and modules
- Working with files and basic error handling

02 Module 2: Interacting with Network Devices

- Introduction to network APIs (REST, RESTCONF, NETCONF)
- Using Python libraries for device interaction (e.g., requests, ncclient)
- Sending and receiving configuration and operational data
- Understanding data formats: JSON and XML

03 Module 3: Data Models and Templating

- Introduction to YANG data models
- Parsing and generating structured data (JSON, YAML, XML)
- Jinja2 templating for configuration generation
- Validation of network configurations using data models

04 Module 4: Network Automation Tools and Frameworks

- Introduction to Ansible for network automation
- Writing Ansible Playbooks for network tasks
- Leveraging community and custom Ansible modules
- Overview of other automation frameworks (e.g., Nornir, PyATS)

05 Module 5: Software-Defined Networking (SDN) Principles

- SDN architecture and concepts
- OpenFlow and southbound APIs
- Controller-based network management

- Programmable fabric concepts (e.g., Cisco DNA Center APIs)

06 Module 6: Version Control and Advanced Scripting

- Introduction to Git and GitHub for network code management
- Implementing CI/CD principles for network changes
- Error handling, logging, and best practices in network scripting
- Developing custom Python scripts for specific network use cases

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Network Automation Engineer**
- > **DevOps Network Engineer**
- > **Senior Network Administrator (with Automation Specialization)**

FREQUENTLY ASKED QUESTIONS

Q: Which specific programming languages and automation tools will I gain hands-on proficiency with, and how will they integrate with Cisco's networking portfolio?

This course focuses primarily on Python as the core programming language for network automation. You will gain extensive practical experience using Python with libraries like `requests` for REST APIs and `ncclient` for NETCONF. Furthermore, you will learn to implement network automation solutions using Ansible, specifically tailored for managing and configuring Cisco devices, including routers, switches, and SD-WAN components. The course also introduces concepts related to Cisco DNA Center APIs for SDN integration.

Q: What are the prerequisites in terms of networking knowledge or existing programming skills expected for participants of this intermediate course?

Participants should have a foundational understanding of networking concepts, including TCP/IP, routing, switching, and common network protocols. While basic programming exposure is beneficial, it is not strictly required, as the course will cover Python fundamentals relevant to network scripting. However, a strong desire to learn programming and automation principles is essential to succeed in this intermediate-level certification.

Q: How will the skills learned in this course specifically enable me to implement scalable and resilient network automation solutions beyond simple configuration tasks?

This course moves beyond basic scripting by teaching you to work with structured data models (YANG, JSON), utilize templating engines (Jinja2) for dynamic configurations, and leverage powerful automation frameworks like Ansible for orchestration. You'll learn to manage network state, perform complex operational data collection, implement network device testing, and integrate with version control systems, preparing you to design and deploy robust, scalable, and resilient automation pipelines for modern network infrastructures.

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+

Years of Excellence

10,000+

Professionals Trained

50+

Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

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