

Programming for Network Engineers (PRNE) v2.0 Course

Course Duration: 32 Hours

Course Code: PRNE v2.0

1. Course Overview

The **Programming for Network Engineers (PRNE) v2.0** course is designed to provide network engineers with essential programming knowledge and skills to automate network tasks and streamline operations. It introduces Python programming, automation fundamentals, and APIs, enabling participants to build efficient network automation solutions. This course bridges the gap between traditional networking and modern automation practices, preparing professionals for evolving industry demands.

2. What You'll Learn?

By the end of this course, you will be able to:

- Understand the fundamentals of programming with Python in the context of networking.
- Use Python to interact with networking devices and perform configuration tasks.
- Learn automation techniques to simplify repetitive tasks.
- Understand APIs, JSON, and data formats relevant to network automation.
- Develop scripts to manage, monitor, and troubleshoot network devices.
- Build a foundation for advanced network automation and programmability.

3. Target Audience

This course is ideal for:

- Network Engineers and Technicians who want to enhance their automation skills.
- System Administrators who work closely with network teams.
- Professionals preparing for Cisco DevNet certifications.
- Anyone interested in applying programming to simplify networking tasks.

4. Pre-Requisites

Participants should have:

- Basic knowledge of networking concepts and protocols.
- Familiarity with command-line interfaces (CLI).
- No prior programming experience is required, but basic understanding of Python is an added advantage.

5. Course Content

Module 1: Introduction to Programming and Python Basics

- Understanding network programmability
- Python setup and environment configuration
- Python syntax, data types, and variables

Module 2: Control Structures and Functions

- Conditional statements and loops
- Writing reusable functions
- Error handling and debugging basics

Module 3: Working with Data and Files

- Strings, lists, and dictionaries
- File handling techniques
- Parsing and handling structured data (JSON, YAML)

Module 4: Network Programming Fundamentals

- Python libraries for networking
- Connecting to network devices using Python
- Automating basic network tasks

Module 5: APIs and Automation

- Understanding REST APIs
- Consuming APIs with Python (Requests library)
- Automating configuration using APIs

Module 6: Practical Network Automation Use Cases

- Automating device configurations
- Monitoring and troubleshooting with scripts
- Real-world automation workflows

Module 7: Final Project and Best Practices

- Developing end-to-end automation scripts
- Implementing reusable code practices
- Preparing for further programmability and DevNet learning