

# Programming for Network Engineers • PRNE

**DURATION:** 4 DAYS

**PRICE:** USD 3595

**CLCs:** 36

**CE:** 24

**COURSE CODE:** PRNE | **FORMAT:** Lecture & Lab

## COURSE DESCRIPTION

The Programming for Network Engineers (PRNE) v2.0 course is designed to equip you with fundamental skills in Python programming. Through a combination of lectures and lab experience in simulated network environments, you will learn to use Python basics to create useful and practical scripts with Netmiko to retrieve data and configure network devices. Upon completion of this course, you should have a basic understanding of Python, including the knowledge to create, apply, and troubleshoot simple network automation scripts.

This course will help you:

- Explain the need for network engineers to learn how to program
- Explain how programming relates to the journey into network automation and programmability
- Create useful and practical scripts to retrieve data and configure network devices
- Create, apply, and troubleshoot simple network automation scripts

- Gain hands-on experience with Python programming

## WHO SHOULD ATTEND

- Network administrators
- Network engineers with little or no programming or Python experience
- Network managers
- Systems engineers

## PREREQUISITES

Familiarity with Cisco IOS®-XE software or other Cisco network device configuration and operation skills

- Basic network management knowledge
- Cisco CCNA® certification or equivalent knowledge

The following Cisco course may help you meet these prerequisites:

- Implementing and Administering Cisco Solutions (CCNA)

# Programming for Network Engineers • PRNE

---

## LEARNING OBJECTIVES

- Create a Python script
- Describe data types commonly used in Python coding
- Describe Python strings and their use cases
- Describe Python loops, conditionals, operators, and their purposes and use cases
- Describe Python classes, methods, functions, namespaces, and scopes
- Describe the options for Python data manipulation and storage
- Describe Python modules and packages, their uses, and their benefits
- Explain how to manipulate user input in Python
- Describe error and exception management in Python
- Describe Python code debugging methods

## COURSE OUTLINE

1. Introducing Programmability and Python for Network Engineers
2. Scripting with Python
3. Examining Python Data Types
4. Manipulating Strings
5. Describing Conditionals, Loops, and Operators
6. Exploring Classes, Methods, Functions, Namespaces, and Scopes
7. Exploring Data Storage Options
8. Exploring Python Modules and Packages
9. Gathering and Validating User Input
10. Analyzing Exceptions and Error Management
11. Examining Debugging Methods
12. Course Summary

## DISCOVERY LABS

1. Execute Your First Python Program
2. Use the Python Interactive Shell
3. Explore Foundation Python Data Types2
4. Explore Complex Python Data Types
5. Use Standard String Operations
6. Use Basic Pattern Matching
7. Reformat MAC Addresses
8. Use the if-else Construct
9. Use for Loops
10. Use while Loops
11. Create and Use Functions
12. Create and Use Classes
13. Use the Python main Construct
14. Traverse the File Structure
15. Read Data in Comma-Separated Values (CSV) Format
16. Read, Store, and Retrieve Data in XML Format
17. Read, Store, and Retrieve Date in JavaScript Object Notation (JSON) Format
18. Read, Store, and Retrieve Data in a Raw or Unstructured Format
19. Import Modules from the Python Standard Library
20. Import External Libraries
21. Create a Python Module
22. Prompt the User for Input
23. Use Command-Line Arguments
24. Manage Exceptions with the try-except Structure
25. Manage Exceptions with the try-except-finally Structure
26. Use Assertions
27. Use Simple Debugging Methods
28. Use the Python Debugger
29. Code a Practical Debugging Script

# Programming for Network Engineers • PRNE

---

## **Instructor Led Training**

To view the schedule and  
secure your site

**SIGN UP HERE**