# Introducing Automation for Cisco Solutions (CSAU)

## Description

Introduction to Cisco Solutions Automation (CSAU) is an essential training for network professionals looking to master Cisco infrastructure automation. This course will allow you to understand the basics of network programmability while exploring concrete solutions to automate your operations. With a combination of lectures and practical labs, you will discover how to use tools such as Python, Git, Ansible, and RESTful APIs to enhance the efficiency of your networks.

Whether you're a network engineer aiming to increase your expertise or a technology specialist wanting to stay on the cutting edge, this course is designed for you. CSAU will help you acquire the skills necessary to navigate automated environments and DevOps methodologies applied to networks. You will thus be prepared to optimize the management of configurations, devices, and data flows in a complex professional environment.

**Niveau**
Intermédiaire
**Course Content**
**Module 1: Network Management and Operations Overview**

- Traditional network management
- Network automation and programmability
- Network automation use cases
- Multi-domain network automation

**Module 2: Exploring Software Development Methodologies**

- Software impact
- Waterfall development process
- Agile methodology

**Module 3: Using Python for Network Automation**

- Python fundamentals
- Network libraries
- Python package management
- Netmiko
- Python internal modules

**Module 4: NetDevOps and Network DevOps**

- Development and operations
- Exploring DevOps tools
- Git fundamentals
- Git branches
- Conflict management
- Continuous integration

**Module 5: Managing Automated Development Environments**

- Need for reproducible development environments
- Python virtual environments
- Vagrant
- Docker

**Module 6: Introduction to Network APIs (HTTP)**

- API overview
- HTTP-based APIs
- RESTful vs Non-RESTful APIs
- HTTP-based authentication
- Postman

**Module 7: Data Formats and Encoding Review**

- JavaScript Object Notation
- Extensible Markup Language
- gRPC and Protobuf
- YAML data serialization

**Module 8: Using Python Requests to Automate HTTP-based APIs**

- Python requests overview
- HTTP authentication

**Module 9: Exploring YANG**

- Introduction to YANG
- Types of YANG models
- Using YANG tools
- Pyang
- YANG explorer

**Module 10: Model-driven APIs Automation with Python**

- NETCONF overview

- Python Nnclient
- RESTCONF overview

**Module 11: Introduction to Ansible for Network Automation**

- Configuration management tools
- Ansible inventory files
- Using Cisco IOS Core configuration module
- Ansible documentation

**Module 12: Configuration Modeling with Jinja2**

- Jinja2 overview
- Basic YAML
- Configuration modeling with Ansible

**Lab / Exercises**

- Use network automation scripts
- Apply Python fundamentals in the interactive interpreter
- Automate networks with Netmiko
- Use Git for version control and collaborate on internal projects
- Build reproducible automated environments
- Use HTTP-based APIs with Postman
- Explore YAML and JSON data formats
- Use HTTP-based APIs with Python requests
- Explore YANG tools
- Explore NETCONF with Python
- Explore RESTCONF with Python
- Configure network devices with Ansible
- Collect network data with Ansible
- Build and deploy configurations with Ansible

**Documentation**

- Digital course materials included

**Participant profiles**

- Network Engineers
- System Administrators
- DevOps Specialists
- Network Support Technicians
- Infrastructure Automation Consultants

**Prerequisites**

- Basic knowledge of Python programming
- Familiarity with Linux commands for file management
- Understanding of network protocols such as OSPF and BGP
- Experience in basic routing and switching
- Knowledge of network configuration management tools

**Objectives**

- Automate network tasks with Python and Ansible
- Configure network devices with programmable solutions
- Implement RESTful APIs for network management
- Use Git for configuration version control
- Create reproducible development environments with Docker
- Utilize Netmiko and Python modules for network automation

**Description**
Introducing Automation for Cisco Solutions (CSAU) training
**Classroom Registration Price (CHF)**
2670
**Virtual Classroom Registration Price (CHF)**
2670
**Duration (in Days)**
3
**Reference**
CSAU