

# NSO Essentials for Programmers and Network Architects (NSO201) v4.2 Course

**Course Duration: 32 Hours**

**Course Code: NSO201 v4.2**

## 1. Course Overview

The *NSO Essentials for Programmers and Network Architects (NSO201) v4.2* course is designed to provide participants with a solid foundation in Cisco Network Services Orchestrator (NSO) concepts. It equips you with the skills required to implement network automation and service orchestration, helping organizations simplify operations, improve agility, and reduce time-to-market. Through hands-on labs and real-world scenarios, learners will gain the ability to develop, deploy, and maintain network services using Cisco NSO.

## 2. What You'll Learn?

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

- Understand Cisco NSO architecture, capabilities, and components.
- Use NSO to model, configure, and manage network services.
- Develop and deploy services using YANG models.
- Integrate NSO with NETCONF and CLI devices.
- Apply templates, service packages, and configuration management techniques.
- Perform service lifecycle operations (create, modify, delete) in NSO.
- Utilize Python and REST APIs for NSO integration and automation.

### 3. Target Audience

This course is ideal for:

- Network Programmability Engineers
- Network Architects
- Automation Engineers
- System Integrators
- Network Administrators and Designers
- Professionals interested in network service orchestration and programmability

### 4. Pre-Requisites

Before attending this course, you should have:

- Basic knowledge of networking concepts and protocols.
- Familiarity with Linux/UNIX operating systems.
- Programming skills in Python.
- Understanding of NETCONF, YANG, and network configuration management (recommended).

### 5. Course Content

#### **Module 1: Introduction to Cisco NSO**

- Overview of Cisco NSO
- Architecture and key components
- Benefits of service orchestration

#### **Module 2: Getting Started with NSO**

- Installing and setting up NSO

- Navigating the NSO CLI and WebUI
- Device configuration and management

### **Module 3: YANG Data Modeling**

- Introduction to YANG models
- Creating and compiling YANG service models
- Using YANG for network automation

### **Module 4: Service Packages and Templates**

- Building service packages
- Working with templates and FASTMAP
- Deploying and managing services

### **Module 5: Device Integration**

- NSO device manager overview
- NETCONF and CLI device integration
- Configuring and synchronizing devices

### **Module 6: APIs and Programming Interfaces**

- Python scripting with NSO
- Using REST and RESTCONF APIs
- Customizing service logic with Python

### **Module 7: Service Lifecycle Management**

- Creating, modifying, and deleting services
- Handling rollbacks and transactions
- Troubleshooting service deployment

### **Module 8: Advanced NSO Concepts**

- Reactive FASTMAP and nano services
- Service upgrades and scaling

- Best practices for NSO in production

### **Module 9: Hands-on Labs**

- Real-world implementation exercises
- End-to-end service orchestration scenarios

