

دوره **CCNA Automation** | دوره ۲۰۰-۹۰۱ **CCNAAUTO**

مروری بر دوره

دوره **Automating Networks Using Cisco Platforms - CCNA Automation** شما را

برای ورود به دنیای **Automation** شبکه و توسعه برنامه‌های کاربردی روی تجهیزات سیسکو آماده می‌کند. این دوره فراتر از مفاهیم سنتی شبکه، بر مهارت‌های برنامه‌نویسی، کار با **API** ها و استقرار خودکار زیرساخت تمرکز دارد.

در پایان این دوره، فراگیران قادر خواهند بود فرآیندهای پیکر بندی، مانیتورینگ و مدیریت شبکه را به صورت خودکار طراحی و اجرا کنند و در مسیر تبدیل شدن به **Network Automation Engineer** گام بردارند.

سرفصل‌ها

Software Development and Design ۱۰٪ ۱۵٪

۱.۱ (Compare data formats (XML, JSON, and YAML

۱.۲ Describe parsing of common data format (XML, JSON, and YAML) to Python data

structures

۱.۳ Describe the concepts of test-driven development

۱.۴ (Compare software development methods (agile, lean, and waterfall

۱.۵ Explain the benefits of organizing code into methods / functions, classes, and modules

۱.۶ (Explain the advantages of common design patterns (MVC and Observer



۱.۷ Explain the advantages of version control

۱.۸ Utilize common version control operations with Git

a Clone.۱.۸

b Add/remove.۱.۸

c Commit.۱.۸

d Push / pull.۱.۸

e Branch.۱.۸

f Merge and handling conflicts.۱.۸

g diff.۱.۸

Understanding and Using APIs ۲.۰ ۲۰٪

۲.۱ Construct a REST API request to accomplish a task given API documentation

۲.۲ Describe common usage patterns related to webhooks

۲.۳ Describe the constraints when consuming APIs

۲.۴ Explain common HTTP response codes associated with REST APIs

۲.۵ Troubleshoot a problem given the HTTP response code, request and API documentation

۲.۶ Interpret the parts of an HTTP response (response code, headers, body)



Utilize common API authentication mechanisms: basic, custom token, and API keys ۲.۷

(Compare common API styles (REST, RPC, synchronous, and asynchronous ۲.۸

Construct a Python script that calls a REST API using the requests library ۲.۹

Cisco Platforms and Development ۳.۰ ۱۵٪

Construct a Python script that uses a Cisco SDK given SDK documentation ۳.۱

Describe the capabilities of Cisco network management platforms and APIs ۳.۲
(Meraki

(Cisco Catalyst Center, ACI, Cisco Catalyst SD-WAN, and NSO

Describe the capabilities of Cisco compute management platforms and APIs ۳.۳
(UCS

(Manager and Intersight

Describe the capabilities of Cisco collaboration platforms and APIs (Webex, ۳.۴
Webex

devices, Cisco Unified Communications Manager including AXL and UDS
(interfaces

Describe the capabilities of Cisco security platforms and APIs (XDR, Firepower, ۳.۵
Secure



(Connect, Secure Endpoint, ISE, and Secure Malware Analytics)

Describe the device level APIs and dynamic interfaces for IOS XE and NX-OS ۳.۶

Describe the appropriate DevNet resource for a given scenario (Sandbox, Code ۳.۷

(Exchange, support, forums, Learning Labs, and API documentation

Apply concepts of model driven programmability (YANG, RESTCONF, and ۳.۸
NETCONF) in a

Cisco environment

Construct code to perform a specific operation based on a set of requirements ۳.۹
and given

.API reference documentation such as these

,a Obtain a list of network devices by using Meraki, Cisco Catalyst Center, ACI.۳.۹

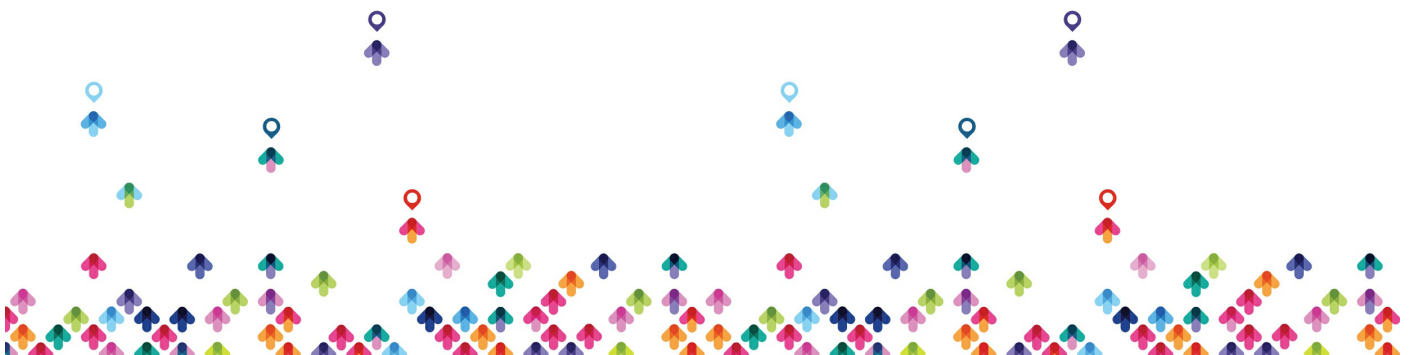
Cisco Catalyst SD-WAN, or NSO

b Manage spaces, participants, and messages in Webex.۳.۹

c Obtain a list of clients / hosts seen on a network using Meraki or Cisco.۳.۹
Catalyst

Center

Application Deployment and Security ۴.۰ ۱۵٪



Describe the benefits of edge computing ۴.۱

Describe the attributes of different application deployment models (private ۴.۲
,cloud

(public cloud, hybrid cloud, and edge

Describe the attributes of these application deployment types ۴.۳

a Virtual machines.۴.۳

b Bare metal.۴.۳

c Containers.۴.۳

Describe components for a CI/CD pipeline in application deployments ۴.۴

Construct a Python unit test ۴.۵

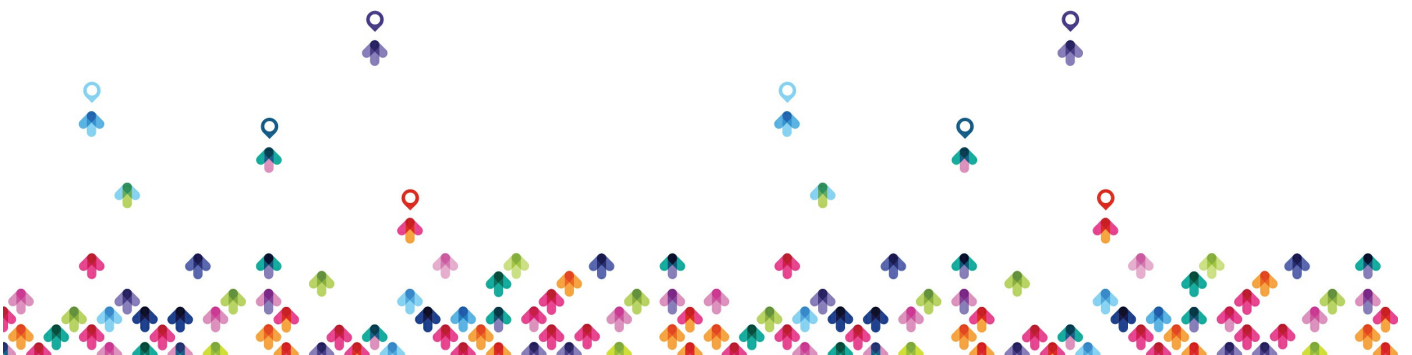
Interpret contents of a Dockerfile ۴.۶

Utilize Docker images in local developer environment ۴.۷

Describe application security issues related to secret protection, encryption ۴.۸
(storage and

transport), and data handling

Explain how firewall, DNS, load balancers, and reverse proxy in application ۴.۹
deployment



(Describe top OWASP threats (such as XSS, SQL injections, and CSRF ۴.۱۰

Utilize Bash commands (file management, directory navigation, and ۴.۱۱
environmental

(variables

Describe the principles of DevOps practices ۴.۱۲

Infrastructure and Automation ۵.۰ ۲۰٪

Describe the value of model driven programmability for infrastructure ۵.۱
automation

Compare controller-level to device-level management ۵.۲

Describe the use and roles of network simulation and test tools (such as Cisco ۵.۳
Modeling

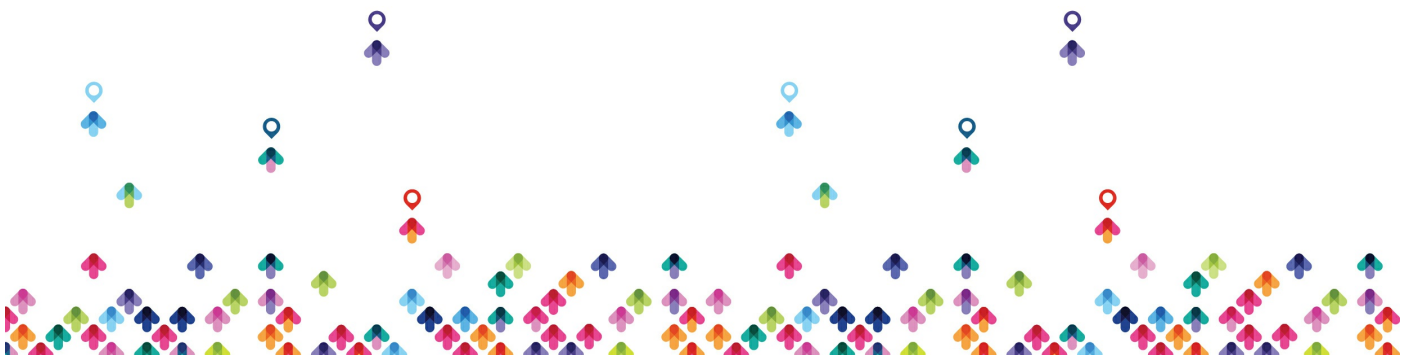
(Labs and pyATS

Describe the components and benefits of CI/CD pipeline in infrastructure ۵.۴
automation

Describe the principles of infrastructure as code ۵.۵

Describe the capabilities of automation tools such as Ansible, Terraform, and ۵.۶
Cisco NSO

Identify the workflow being automated by a Python script that uses Cisco APIs ۵.۷



including

ACI, Meraki, Cisco Catalyst Center, and RESTCONF

Interpret the workflow being automated by an Ansible playbook (management ۵.۸
packages, user management related to services, basic service configuration, and

(start/stop

Interpret the workflow being automated by a bash script (such as file ۵.۹
management, app

(install, user management, directory navigation

Interpret the results of a RESTCONF or NETCONF query ۵.۱۰

Interpret basic YANG models ۵.۱۱

Interpret a unified diff ۵.۱۲

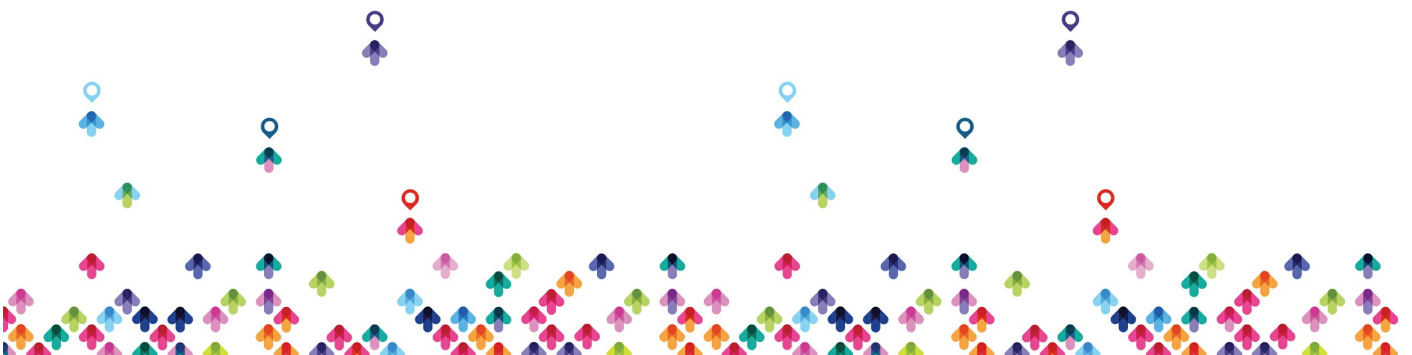
Describe the principles and benefits of a code review process ۵.۱۳

Interpret a sequence diagram that includes API calls ۵.۱۴

Network Fundamentals ۶.۰ ۱۵٪

Describe the purpose and usage of MAC addresses and VLANs ۶.۱

Describe the purpose and usage of IP addresses, routes, subnet mask / prefix, ۶.۲
and



gateways

Describe the function of common networking components (such as switches, ۶.۳
,routers

(firewalls, and load balancers

Interpret a basic network topology diagram with elements such as switches, ۶.۴
,routers

firewalls, load balancers, and port values

Describe the function of management, data, and control planes in a network ۶.۵
device

Describe the functionality of these IP Services: DHCP, DNS, NAT, SNMP, NTP ۶.۶

Recognize common protocol port values (such as, SSH, Telnet, HTTP, HTTPS, and ۶.۷
(NETCONF

Diagnose application connectivity issues (NAT problem, Transport Port blocked, ۶.۸
,proxy

(and VPN

Explain the impacts of network constraints on applications ۶.۹

مخاطبان دوره

- مهندسان شبکه (Network Engineers) که قصد دارند مهارت‌های خود را با برنامه‌نویسی ترکیب کنند.



- مدیران و ادمین‌های سیستم که با زیرساخت شبکه تعامل دارند.
- کارشناسان NOC/SOC که به دنبال بهبود سرعت و دقت عملیات روزمره هستند.
- افرادی که مایل‌اند مسیر حرفه‌ای خود را از پشتیبانی سنتی شبکه به Automation و DevNet منتقل کنند.

