



# ویستا فن آوری فردا

مشاوره، اجرا، تامین و ارائه تجهیزات  
آموزش دوره های تخصصی IT، مخابرات، مدیریت  
شناسه ملی: ۱۴۰۰۷۲۹۶۴۲۹

## CCNA 200 – 301 NEW SYLLABUS

### CORE TOPICS

#### Unit 1: Network Fundamentals

#### Unit 5: Security Fundamentals

#### Unit 2: Network Access

#### Unit 6: Network Management

#### Unit 3: IP Connectivity

#### Unit 7: Automation and Programmability

#### Unit 4: IP Services

#### Unit 8: Cloud Computing

### Unit 1: Network Fundamentals

1. Introduction to the OSI Model
2. Introduction to IPv4 (Internet Protocol)
3. IPv4 Packet Header
4. Address Resolution Protocol (ARP)
5. Introduction to TCP and UDP
7. TCP Window Size Scaling
8. Introduction to ICMP
9. Introduction to DNS
10. Introduction to Cisco Command Line Interface (CLI)
11. User mode and Privileged mode



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## 6. TCP Header

### Unit 2: Network Access

#### 2.2 VLANs and Trunks

1. Introduction to VLANs
2. How to configure VLANs
3. VLAN Trunking Protocol (VTP)
4. Introduction to 802.1Q
5. How to configure a Trunk
6. Dynamic Trunking Protocol (DTP)
7. 802.1Q Native VLAN
8. Introduction to Voice VLAN
9. Etherchannels
10. L3 Etherchannel

#### 2.3 Spanning-Tree

1. Introduction to Spanning-Tree
2. Per VLAN Spanning-Tree
3. Spanning-Tree Port States
4. Spanning-Tree Cost Calculation
5. Spanning-Tree Portfast
6. Rapid PVST
7. Rapid PVST Configuration

#### 2.4 Wireless



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1. Introduction to Wireless Networks
2. Introduction to Wireless LANs
3. Wireless LAN 802.11 Service Sets
4. Introduction to Wireless Security
5. Wireless Authentication Methods
6. Wireless Encryption and Integrity
7. Wi-Fi Protected Access (WPA)
8. Cisco Wireless Network Architectures
9. Cisco WLC Deployment Models
10. Cisco Wireless AP Modes
11. Cisco Wireless LAN Controller (WLC) Basic Configuration
12. Cisco WLC WPA2 PSK Authentication

## Unit 3: IP Connectivity

### 3.1 Introduction

1. Introduction to Routers and Routing
2. Cisco IOS Router Basic Configuration
3. Introduction to Wide Area Networks (WAN)

### 3.2 IPv4 Subnetting

1. Introduction to Subnetting
2. Basics of Binary Numbers
3. Subnetting in Binary
6. Variable Length Subnet Mask (VLSM)
7. Route Summarization
8. Hexadecimal to Binary and Decimal Conversion



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4. Subnetting in Decimal (Fast Method)
9. Create a Subnetting Cheat Sheet
5. Classless Inter-Domain Routing (CIDR)

## 3.3 IPv6

1. Introduction to IPv6
6. IPv6 EUI-64
2. Shortening IPv6 Addresses
7. IPv6 Summarization
3. How to find IPv6 Prefix
8. IPv6 Solicited Node Multicast Address
4. IPv6 Address Types
9. IPv6 Neighbor Discovery Protocol (NDP)
5. IPv6 Address Assignment Example
10. IPv6 Stateless Autoconfiguration

## 3.4 Routing

1. Default Gateway
6. InterVLAN Routing
2. Static Routing
7. Administrative Distance
3. IPv6 Static Route
8. Floating Static Route
4. IP Routing Explained
9. Introduction to Route Summarization
5. Router on a Stick

## 3.5 OSPF (OPEN SHORTEST PATH FIRST)



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1. Introduction to OSPF
2. OSPF Configuration
3. OSPF Packets and Neighbor Discovery
4. OSPF Reference Bandwidth
5. OSPF Router ID
6. OSPF DR/BDR Election
7. OSPF Passive Interface
8. OSPF Hello and Dead Interval

## 3.6 Gateway Redundancy

1. Introduction to Gateway Redundancy

## Unit 4: IP Services

### 4.1 DHCP (Dynamic Host Configuration Protocol)

1. Introduction to DHCP
2. DHCP Server Configuration
3. DHCP Relay Agent
4. DHCP Client
5. DHCP Server IPv6 Configuration

### 4.2 SNMP (Simple Network Management Protocol)

1. Introduction to SNMP
2. SNMPv2
3. SNMPv3



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## 4.3 NAT (Network Address Translation)

1. Introduction to NAT and PAT
2. NAT Static
3. NAT Dynamic
4. Port Address Translation (PAT)

## 4.4 (QoS) Quality of Service

1. Introduction to Quality of Service (QoS)
2. IP Precedence and DSCP Values
3. Classification
4. Marking
5. Shaping
6. Policing

## Unit 5: Security Fundamentals

### 5.1 Access-Lists

1. Introduction to Access-Lists
2. Wildcard Bits
3. Standard Access-List
4. Extended Access-List
5. Time-based Access-List

### 5.2 Misc

1. Port-Security
2. AAA and 802.1X
5. DHCP Snooping
6. Introduction to Firewalls



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3. AAA User Authentication
4. AAA Admin Authentication
7. Introduction to VPNs

## Unit 7: Network Management

1. Introduction to CDP
2. Introduction to LLDP
3. Telnet Server and Client
4. SSH Server and Client
5. Introduction to NTP
6. Introduction to Syslog
7. Configuration Register
8. Password Recovery on Cisco IOS
9. Cisco IOS File System
10. Upgrade Cisco IOS Image

## Unit 8: Automation and Programmability

1. Device Programmability
2. REST API
3. Data Models and Structures
4. Configuration Management Tools and Version Control Systems
5. Introduction to Software Defined Networking (SDN)
6. Spine and Leaf Architecture

## Unit 9: Cloud Computing

1. Virtual Machines and Containers
2. Introduction to Cloud Computing



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### 3. Cloud Connectivity

Under the current CCNA certification program, there are multiple concentration exams for different learning paths. However, under the new rules, the following certifications will all be replaced by the new CCNA:

- CCNA Cloud
- CCNA Collaboration
- CCNA Data Center
- CCNA Industrial
- CCNA Routing and Switching
- CCNA Security
- CCNA Service Provider
- CCNA Wireless
- CCDA (Cisco Certified Design Associate)

So, the specialization at the CCNA level is going away – you will now choose your specialization at the CCNP level.