

## Cisco Certified Network Professional (CCNP) – Routing & Switching

Cisco Certified Network Professional (CCNP®) certification validates the ability to plan, implement, verify and troubleshoot local and wide-area enterprise networks and work collaboratively with specialists on advanced security, voice, wireless and video solutions. The CCNP certification is appropriate for those with at least one year of networking experience who are ready to advance their skills and work independently on complex network solutions. Those who achieve CCNP have demonstrated the skills required in enterprise roles such as network technician, support engineer, systems engineer or network engineer.

### Prerequisites for CCNP Routing & Switching

Valid Cisco CCNA or any Cisco CCIE certification can act as a prerequisite.



### Course Topics

- 642-902 ROUTE Implementing Cisco IP Routing (ROUTE)
- 642-813 SWITCH Implementing Cisco IP Switched Networks (SWITCH)
- 642-832 TSHOOT Troubleshooting and Maintaining Cisco IP Networks (TSHOOT)

### Course Content of Implementing Cisco IP Routing (ROUTE)

**ROUTE v1.0 – Implementing Cisco IP Routing** – is a five-day instructor-led course in which network professionals learn to plan, configure, and verify the implementation of complex enterprise LAN and WAN routing solutions, using a range of routing protocols. ROUTE v1.0 also covers configuration of secure routing solutions to support branch offices and mobile workers. The course includes more than seven hours of e-learning lessons and demos that students can absorb at their own pace.

### Course Objectives

Upon completing this course, the student will be able to meet these overall objectives:

- Plan and document the configuration and verification of routing protocols and their optimization in enterprise networks.
- Identify the technologies, components, and metrics of EIGRP used to implement and verify EIGRP routing in diverse, large-scale internetworks based on requirements.
- Identify, analyze, and match OSPF multiarea routing functions and benefits for routing efficiencies in network operations in order to implement and verify OSPF routing in a complex enterprise network.
- Implement and verify a redistribution solution in a multi-protocol network that uses Cisco IOS features to control path selection and provides a loop-free topology according to a given network design and requirements.
- Evaluate common network performance issues and identify the tools needed to provide Layer 3 path control that uses Cisco IOS features to control the path.
- Implement and verify a Layer 3 solution using BGP to connect an enterprise network to a service provider.

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## Course Outline

- Module 0: Course Overview
- Module 1: Planning Routing Services
- Module 2: Implementing an EIGRP based Solution
- Module 3: Implementing a Scalable Multiarea Network OSPF based Solution
- Module 4: Implement an IPv4 based redistribution solution
- Module 5: Implement Path Control
- Module 6: Connecting an Enterprise Network to ISP Networks
- E-Learning ROUTE-01 of 3: Implement Path Control
- E-Learning ROUTE-02 of 3: Implementing IPv6
- E-Learning ROUTE-03 of 3: Implementing Routing Facilities for Branch Offices and Mobile Workers

## Course Content of Implementing Cisco IP Switched Networks (SWITCH)

**SWITCH v1.0** – *Implementing Cisco IP Switched Networks* – is a five-day instructor-led course in which network professionals will learn to plan, configure, and verify the implementation of complex enterprise switching solutions, using Cisco Enterprise Campus Architecture. SWITCH v1.0 also covers secure integration of VLANs, WLANs, voice, and video into campus networks.

### Course Objectives

Upon completing this course, the student will be able to meet these overall objectives:

- Analyze campus network designs
- Implement VLANs in a network campus
- Implement spanning tree
- Implement inter-VLAN routing in a campus network
- Implement a highly available network
- Implement high-availability technologies and techniques using multilayer switches
- Implement security features in a switched network
- Integrate WLANs into a campus network
- Accommodate voice and video in campus networks

### Course Outline

- Module 0: Course Overview
- Module 1: Analyzing Campus Network Designs
- Module 2: Implementing VLANs in Campus Networks
- Module 3: Implementing Spanning Tree
- Module 4: Implementing Inter-VLAN Routing
- Module 5: Implementing First Hop Redundancy in a Campus Environment
- Module 6: Implementing a Highly Available Network
- Module 7: Minimizing Service Loss and Data Theft in a Campus Network
- Module 8: Integrating Wireless LANs into a Campus Network
- Module 9: Accommodating Voice and Video in Campus Networks

## Course Content of Troubleshooting and Maintaining Cisco IP Networks

**TSHOOT v1.0** – *Troubleshooting and Maintaining Cisco IP Networks* – is a five-day instructor-led course in which network professionals learn to (1) plan and perform regular maintenance on complex enterprise routed and switched networks, and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting. Extensive labs provide hands-on learning and reinforce troubleshooting skills. The course includes more than nine hours of e-learning lessons and demos that students can absorb at their own pace.

### Course Objectives

Upon completing this course, the student will be able to meet these overall objectives:

- Plan and document the most commonly performed maintenance functions in complex enterprise networks
- Develop a troubleshooting process to identify and resolve problems in complex enterprise networks
- Select tools that best support specific troubleshooting and maintenance processes in large, complex enterprise networks
- Practice maintenance procedures and fault resolution in switching-based environments
- Practice maintenance procedures and fault resolution in routing-based environments
- Practice maintenance procedures and fault resolution in a secure infrastructure
- Troubleshoot and maintain integrated, complex enterprise networks

### Course Outline

- Module 0: Curriculum Overview
- Module 1: Planning Maintenance for Complex Networks
- Module 2: Selecting Maintenance and Troubleshooting Tools and Applications
- Module 3: Planning Troubleshooting Processes for Complex Enterprise Networks
- Module 4: Maintaining and Troubleshooting Campus Switching-Based Problems
- Module 5: Maintaining and Troubleshooting Routing Based Solutions
- Module 6: Maintaining and Troubleshooting Network Security Solutions
- Module 7: Maintaining and Troubleshooting Integrated, Complex Enterprise Networks
- E-Learning TSHOOT-01: Troubleshooting Performance Problems on Switches
- E-Learning TSHOOT-02: Troubleshooting Wireless Connectivity
- E-Learning TSHOOT-03: Troubleshooting Voice over IP
- E-Learning TSHOOT-04: Troubleshooting Video
- E-Learning TSHOOT-05: Troubleshooting Multicast
- E-Learning TSHOOT-06: Troubleshooting NAT and PAT
- E-Learning TSHOOT-07: Troubleshooting DHCP
- E-Learning TSHOOT-08: Troubleshooting IPv6, OSPFv3, and RIPng

## Exam Description

To earn this Cisco certification, you must pass the following exam(s):

### **642-902 ROUTE**

The Implementing Cisco IP Routing (ROUTE 642-902) is a qualifying exam for the Cisco Certified Network Professional CCNP, Cisco Certified Internetwork Professional CCIP, and Cisco Certified Design Professional CCDP certifications. The ROUTE 642-902 exam will certify that the successful candidate has the knowledge and skills necessary to use advanced IP addressing and routing in implementing scalable and secure Cisco ISR routers connected to LANs and WANs. The exam also covers configuration of secure routing solutions to support branch offices and mobile workers. The 640-554 Implementing Cisco IOS Network Security (IINS) exam is associated with the CCNA Security certification. This exam tests a candidate's knowledge of securing Cisco routers and switches and their associated networks. It leads to validated skills for installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security infrastructure.

### **642-813 SWITCH**

Implementing Cisco IP Switched Networks (SWITCH 642-813) is a qualifying exam for the Cisco Certified Network Professional CCNP, and Cisco Certified Design Professional CCDP certifications. The SWITCH 642-813 exam will certify that the successful candidate has important knowledge and skills necessary to to plan, configure and verify the implementation of complex enterprise switching solutions using Cisco's Campus Enterprise Architecture. The SWITCH exam also covers secure integration of VLANs, WLANs, voice and video into campus networks.

### **642-832 TSHOOT**

Troubleshooting and Maintaining Cisco IP Networks (TSHOOT 642-832) is a qualifying exam for the Cisco Certified Network Professional CCNP, certification. The TSHOOT 642-832 exam will certify that the successful candidate has important knowledge and skills necessary to (1) plan and perform regular maintenance on complex enterprise routed and switched networks and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting.

#### **Details:**

Exam No.	: CCNP - 642-902, 642-813 & 642-832
Delivered at	: Authorized VUE Testing Centers
Exam Fee	: \$ 200.00 each exam