CCNA Exam Topics
Interconnecting Cisco Networking Devices
(ICND 640-811)

From the Cisco ICND 640-811 Exam Topics

Planning and Designing
- Design or modify a simple LAN using Cisco products
- Design an IP addressing scheme to support classful, classless, and private addressing to meet design requirements
- Select an appropriate routing protocol based on user requirements
- Design a simple internetwork using Cisco products
- Develop an access list to meet user specifications
- Choose WAN protocols to meet design requirements

Implementation and Operation
- Perform an initial configuration on a switch
- Configure routing protocols given user requirements
- Configure IP addresses, subnet masks, and gateway addresses on routers and hosts
- Configure a router for additional administrative functionality
- Configure a switch with VLANS and inter-switch communication
- Implement a LAN
- Customize a switch configuration to meet specified network requirements
- Implement access lists
- Implement simple WAN protocols

Troubleshooting
- Utilize the OSI model as a guide for systematic network troubleshooting
- Perform LAN and VLAN troubleshooting
- Troubleshoot routing protocols
- Troubleshoot IP addressing and host configuration
- Troubleshoot a device as part of a working network
- Troubleshoot an access list
- Perform simple WAN troubleshooting

Technology
- Describe the Spanning Tree process
- Evaluate the characteristics of LAN environments
- Evaluate the characteristics of routing protocols
- Evaluate rules for packet control
- Evaluate key characteristics of HDLC, PPP, Frame Relay, DDR, and ISDN technologies

Planning and Designing
- Design or modify a simple LAN using Cisco products
  - *LAN Switching*
  - *Layer 2 Switching – Virtual Local Area Networks (VLANs)*
  - *Layer 2 Switching and Bridging*
  - *OSI Reference Model*
  - *Layer 1 and Layer 2 Ethernet*

- Design an IP addressing scheme to support classful, classless, and private addressing to meet design requirements
  - *Topology and IP Addressing*

- Select an appropriate routing protocol based on user requirements
  - *IP Routing*
  - *OSPF in Single Areas: Learning the Protocol*

- Design a simple internetwork using Cisco products
  - *Basic Router Operation*
  - *IP Routing*
  - *OSI Reference Model*
  - *Access Denied: Network Security with Cisco Routers*
  - *ISDN and DDR*
  - *LAN Switching*
  - *Network Management*
  - *Physical Internetworking and Industry Standards for Networks*

- Develop an access list to meet user specifications
  - *Access Denied: Network Security with Cisco Routers*
  - *Network Management*
  - *The Other VPNs: It's Not All MPLS*
  - *Layer 2 Switching – Virtual Local Area Networks (VLANs)*
  - *ISDN and DDR*

- Choose WAN protocols to meet design requirements
  - *WAN Protocols*
  - *Address Resolution Protocol (ARP)*
  - *Physical Internetworking and Industry Standards for Networks*
  - *OSI Reference Model*
  - *Network Management*
  - *Layer 2 Switching and Bridging*
  - *Basic Router Operation*

Implementation and Operation
- Perform an initial configuration on a switch
  - *LAN Switching*
  - *Layer 2 Switching and Bridging*

Layer 2 Switching – Virtual Local Area Networks (VLANs)
New Age Bridging and Switching
Layer 1 and Layer 2 Ethernet
Basic Router Operation

• Configure routing protocols given user requirements
  IP Routing
  Basic Router Operation
  OSPF in Single Areas: Learning the Protocol
  Layer 2 Switching and Bridging

• Configure IP addresses, subnet masks, and gateway addresses on routers and hosts
  Topology and IP Addressing
  Layer 1 and Layer 2 Ethernet

• Configure a router for additional administrative functionality
  Basic Router Operation

• Configure a switch with VLANS and inter-switch communication
  Layer 2 Switching – Virtual Local Area Networks (VLANs)
  Layer 2 Switching and Bridging

• Implement a LAN
  LAN Switching
  Layer 2 Switching – Virtual Local Area Networks (VLANs)
  Layer 2 Switching and Bridging
  OSI Reference Model
  Layer 1 and Layer 2 Ethernet

• Customize a switch configuration to meet specified network requirements
  New Age Bridging and Switching
  LAN Switching
  Layer 2 Switching and Bridging
  Layer 2 Switching – Virtual Local Area Networks (VLANs)

• Implement access lists
  Access Denied: Network Security with Cisco Routers
  Network Management
  The Other VPNs: It's Not All MPLS
  Layer 2 Switching – Virtual Local Area Networks (VLANs)
  ISDN and DDR

• Implement simple WAN protocols
  WAN Protocols
  Address Resolution Protocol (ARP)
  Physical Internetworking and Industry Standards for Networks

> *OSI Reference Model*
> *Network Management*
> *Layer 2 Switching and Bridging*
> *Basic Router Operation*

Troubleshooting

- Utilize the OSI model as a guide for systematic network troubleshooting
  > *OSI Reference Model*
  > *Basic Router Operation*
  > *Physical Internetworking and Industry Standards for Networks*
  > *Troubleshooting Ethernet Networks*
  > *WAN Troubleshooting Guide*

- Perform LAN and VLAN troubleshooting
  > *Layer 2 Switching – Virtual Local Area Networks (VLANs)*
  > *Basic Router Operation*
  > *New Age Bridging and Switching*
  > *Layer 1 and Layer 2 Ethernet*
  > *LAN Switching*
  > *Layer 2 Switching and Bridging*
  > *Network Management*
  > *Troubleshooting Ethernet Networks*

- Troubleshoot routing protocols
  > *IP Routing*
  > *Address Resolution Protocol (ARP)*
  > *Layer 1 and Layer 2 Ethernet*
  > *OSPF in Single Areas: Learning the Protocol*
  > *WAN Protocols*
  > *Troubleshooting Ethernet Networks*
  > *WAN Troubleshooting Guide*

- Troubleshoot IP addressing and host configuration
  > *Topology and IP Addressing*
  > *Layer 1 and Layer 2 Ethernet*
  > *Troubleshooting Ethernet Networks*
  > *WAN Troubleshooting Guide*

- Troubleshoot a device as part of a working network
  > *Basic Router Operation*
  > *Physical Internetworking and Industry Standards for Networks*
  > *Network Management*
  > *WAN Troubleshooting Guide*
  > *Troubleshooting Ethernet Networks*

- Troubleshoot an access list

Access Denied: Network Security with Cisco Routers
Network Management
The Other VPNs: It's Not All MPLS
Layer 2 Switching – Virtual Local Area Networks (VLANs)
ISDN and DDR

- Perform simple WAN troubleshooting
    WAN Protocols
    Address Resolution Protocol (ARP)
    Physical Internetworking and Industry Standards for Networks
    OSI Reference Model
    Network Management
    Layer 2 Switching and Bridging
    Basic Router Operation
    WAN Troubleshooting Guide

Technology
- Describe the Spanning Tree process
    Introduction to the Spanning Tree Protocol
    Layer 2 Switching and Bridging
    Layer 2 Switching – Virtual Local Area Networks (VLANs)
    LAN Switching
    Layer 1 and Layer 2 Ethernet
    New Age Bridging and Switching
    Physical Internetworking and Industry Standards for Networks

- Evaluate the characteristics of LAN environments
    Layer 1 and Layer 2 Ethernet
    New Age Bridging and Switching
    LAN Switching
    Layer 2 Switching and Bridging
    Physical Internetworking and Industry Standards for Networks

- Evaluate the characteristics of routing protocols
    IP Routing
    Address Resolution Protocol (ARP)
    Layer 1 and Layer 2 Ethernet
    OSPF in Single Areas: Learning the Protocol
    WAN Protocols

- Evaluate rules for packet control
    Address Resolution Protocol (ARP)
    OSI Reference Model
    Access Denied: Network Security with Cisco Routers
    Layer 2 Switching and Bridging
    WAN Protocols

ISDN and DDR

- Evaluate key characteristics of HDLC, PPP, Frame Relay, DDR, and ISDN technologies
  ISDN and DDR
  WAN Protocols
  Physical Internetworking and Industry Standards for Networks
  Basic Router Operation
  IP Routing
  Network Management
  Address Resolution Protocol (ARP)
  The Other VPNs: It's Not All MPLS