

Networking and Communications 2

Course Outcome Summary

Course Information

Organization	Madison Area Technical College
Developers	Mike Masino; Nina Milbauer
Development Date	1/3/2005
Course Number	10-150-172
Instructional Level	Associate Degree
Potential Hours of Instruction	72
Total Credits	4

Description

A continuation of Networking and Communications 1, this course includes access lists, LAN segmentation, virtual LANs, router and switch configuration, network monitoring, IPX and LAN and WAN network design.

Types of Instruction

Instruction Type	Contact Hours	Credits
On-Campus Lab	36	2
Classroom Presentation	36	2

Textbooks

Cisco Systems. *CCNA:3 Switching basics and intermediate routing. (On Line Curriculum)*. Cisco Systems. **Source:** <http://network.matcmadison.edu/>.

Cisco Systems. *CCNA:4 WAN technologies (On Line Curriculum)*. Cisco Systems. **Source:** <http://network.matcmadison.edu/>.

Learner Supplies

Engineering Journal. **Manufacturer:** Any. **Quantity:** 1. **Source:** Any.

Floppy Disc. **Quantity:** 1.

Prerequisites

10-107-197 (Networking and Communications 1) (Must follow 10-107-197 within one year)

10-107-165 (Network Media)

Exit Learning Outcomes

Core Abilities

- A. Critical thinking
- B. Science and Technology

Competencies

- A. **Create subnets of different sizes using VLSM [Variable Length Subnet Masking]**

You will demonstrate your competence:

- A.1. by creating subnets of different sizes using VLSM [Variable Length Subnet Masking]

A.2. using a diagram and Class C network address provided by the instructor

Your performance will be successful when:

- A.1. diagram uses the most efficient number of host addresses for each network possible
- A.2. diagram includes the network (Wire) address of each subnet
- A.3. diagram includes the range of usable host addresses for each subnet
- A.4. diagram includes the broadcast address of each subnet
- A.5. diagram has your finished address scheme applied to the networks

B. Configure RIP v2

You will demonstrate your competence:

- B.1. in the lab
- B.2. by performing RIP v2 configuration

Your performance will be successful when:

- B.1. Configured router has RIP v2 enabled
- B.2. Configured router has correct network statements entered
- B.3. Configured router has default routes configured using the ip route and ip default-network commands
- B.4. Configured router connectivity is verified

C. Configure the Single-Area OSPF [Open Shortest Path First] routing process

You will demonstrate your competence:

- C.1. in the lab
- C.2. by configuring the OSPF routing process

Your performance will be successful when:

- C.1. Configured router has OSPF enabled
- C.2. Configured router has correct and properly formatted network statements entered
- C.3. Configured router has a loopback address assigned to set router priority
- C.4. Configured router has OSPF authentication configured correctly
- C.5. Configured router has a default route configured
- C.6. Configured router has the route metric set to change OSPF route preference
- C.7. Configured router connectivity is verified

D. Perform basic EIGRP [Enhanced Interior Gateway Routing Protocol] configuration

You will demonstrate your competence:

- D.1. in the lab
- D.2. by performing basic EIGRP configuration

Your performance will be successful when:

- D.1. Configured router has EIGRP route summarization configured
- D.2. Configured router has EIGRP operation verified using the "show" commands
- D.3. Configured router connectivity is verified

E. Perform switch configuration

You will demonstrate your competence:

- E.1. in the lab
- E.2. by performing switch configuration

Your performance will be successful when:

- E.1. Configured Switch has the IP address and default gateway set to allow connection and management over a network
- E.2. Configured Switch interfaces are configured for speed and duplex operation
- E.3. Configured Switch has port security configured
- E.4. Configured Switch connectivity is verified

F. Design a basic LAN

- G. Configure VLANs [Virtual Local Area Network] on a switch**
You will demonstrate your competence:
G.1. in the lab
G.2. by performing VLAN configuration on a switch
Your performance will be successful when:
G.1. Configured switch will have required VLAN's defined
G.2. Configured switch will have VLAN's assigned to appropriate interfaces
G.3. Configured switch will have connectivity to all VLAN's verified
- H. Configure a VLAN [Virtual Local Area Network] trunk**
You will demonstrate your competence:
H.1. in the lab
H.2. by performing VLAN trunking protocol configuration on a switch
Your performance will be successful when:
H.1. Configured switch is appropriately set to one of the two available versions of VTP
H.2. Configured switch has a management domain correctly defined
H.3. Configured switch is appropriately set to one of the three available VTP modes
- I. Configure NAT [Network Address Translation]**
- J. Configure PAT [Port Address Translation]**
- K. Configure a DHCP [Dynamic Host Configuration Protocol] server**
- L. Recommend a WAN [Wide Area Network] design to an organization based on its needs**
- M. Configure PPP [Point to Point Protocol]**
- N. Configure the router ISDN [Integrated Services Digital Network] interface**
- O. Configure a Frame Relay PVC [Permanent Virtual Circuit]**
- P. Identify the tasks involved in network administration**