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## **Course Agreement**

This course introduces the architecture, structure, functions, components, and models of the Internet and computer networks. The principles of IP addressing and fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

## **Curriculum Content Goals**

100% of the curriculum content goals will be covered in the high school course(s) by qualified CTE high school instructor(s).

A primary objective of this course is to begin student preparation for Network+ certification examinations. Class exercises and testing will be similar to those found on one or more of these certification examinations.

### **Course Goals (Anoka-Ramsey Community College)**

- Identify different types of networks;
- Identify different network topologies;
- Identify different network hardware components;
- Demonstrate knowledge of OSI layers;
- Specify the OSI layers that operate at network hardware components;
- Identify different network cabling;
- Identify different network protocols;
- Identify different network architectures;
- Be able to use different network services;
- Identify the components of network administration and management;
- Discuss the network software;
- Identify the components of wide area networks;
- Identify the components of Internet networking;
- Identify the network testing equipment.

### **Learning Outcomes (Hennepin Technical College):**

- Explain the function of each layer of the OSI model
- Align the OSI layers to the TCP/IP model
- Design an addressing and subnetting scheme for a routed IP network
- Describe the relationship between IP and MAC addresses
- Compare IPv4 and IPv6 address formats
- Describe the role and function of routers and switches
- Configure switches and end devices in a LAN
- Configure initial router settings to enable end-to-end connectivity between remote devices
- Identify common connectivity issues
- Contrast WAN and LAN technologies
- Identify standard cable types
- Identify commonly used TCP and UDP ports

## Assessments

To obtain Articulated College Credit, students will complete the following:

1. Successful completion of the course showing the full range of grasping the course concepts and principles with a grade of **B or better**.
2. End-of-course assessment(s) or technical skill assessment(s) completed with a grade of **B or better**.
3. CISCO Networking Academy curriculum and assessments may be used.
4. Teachers/faculty may use the recommended technical skill assessments listed in a course(s) singly or together to achieve assessing student learning in the course outcomes.

### **Recommended Industry-Recognized Certification Or Comprehensive Assessment – College**

<b>Certification or Assessment</b>	<b>Vendor</b>	<b>Other Information</b>
CISCO Certified Entry Networking Technician (CCENT) Certification	CISCO	<a href="http://www.cisco.com">www.cisco.com</a>

### **Recommended Industry-Recognized Certification Or Comprehensive Assessment – High School**

<b>Certification or Assessment</b>	<b>Vendor</b>	<b>Other Information</b>
CISCO Certified Entry Networking Technician (CCENT) Certification	CISCO	<a href="http://www.cisco.com">www.cisco.com</a>
Network Fundamentals (888)	Precision Exams	<a href="http://www.precisionexams.org">www.precisionexams.org</a>