

## 2012/2013 Home Networking (Cisco Networking 1A)

PTI501 - 36 weeks

### DoDEA Course Description and Competencies

#### About the Program

Home Networking prepares students for careers in the IT industry. The course sequence focuses on duties and tasks performed by professionals in Networking Systems as well as pre-employment and employment skills.

**Major Concepts/Content:** This course prepares students to become network engineers and prepares them for entrance into a technology career field or for further technology study. The program includes a complete range of basic and advanced networking concepts – from pulling cables through such complex concepts as subnet masking rules and strategies.

**Major Instructional Activities:** The program teaches students to design, build, and maintain small to medium-sized networks. Activities are conducted in a lab setting using computers, servers, and routers that students assemble into functional networks. During the course students will participate in threaded case study discussions.

**Major Evaluative Techniques:** Students will demonstrate their knowledge through tests, hands-on demonstrations, and projects.

PTI 501 36 weeks	Home Networking TASKS/COMPETENCIES	Mastery	Non- Mastery
<b>Implementing DoDEA's CTE Course Requirements</b>			
• 001	Demonstrate DoDEA's Workplace Readiness Skills in course activities.		
• 002	Identify issues related to this field of study that affect the environment and impact local and global communities.		
• 003	Identify Internet safety issues and procedures for complying with acceptable use standards.		
<b>Exploring Personal Computer Hardware</b>			
• 004	Identify the purpose and uses of personal computers.		
• 005	Describe local and network applications.		
• 006	Compare different types of computing devices.		
• 007	Explain the binary representation of data.		
• 008	Identify, install, and configure components and peripheral devices for installation and upgrade.		

<b>Identifying Common Operating Systems (OS)</b>			
• 009	Describe the purpose of an operating system (OS).		
• 010	Identify operating systems for common platforms.		
• 011	Prepare the computer to participate on the network.		
• 012	Describe steps needed to properly maintain the operating systems.		
• 013	Explain the concept of networking and the benefits of networks.		
• 014	Explain the concept of communication protocols.		
• 015	Explain how communication occurs across a local network.		
• 016	Describe Access Layer devices and communication methods on a local Ethernet network.		
• 017	Describe Distribution Layer devices and communication methods across networks.		
• 018	Plan, build, and configure a standalone local network.		
<b>Connecting to the Internet through an Internet Service Provider (ISP)</b>			
• 019	Explain how to connect and transfer data across the Internet using an ISP.		
• 020	Describe the components of an ISP Network Operations Center.		
• 021	Identify types of cables, connectors and connecting devices.		
• 022	Construct and test network cabling.		
<b>Addressing the Network</b>			
• 023	Explain how Internet Protocol (IP) address and Subnet Mask are used		
• 024	Describe the methods of obtaining an IP address.		
• 025	Describe the use of Network Address Translation (NAT) on a home or small business network using an Integrated Router.		
• 026	Configure Dynamic Host Configuration Protocol (DHCP) & NAT on SOHO equipment.		
<b>Identifying Network Services</b>			
• 027	Differentiate between clients and servers and their interaction over the network.		
• 028	Describe the type of interactions of Internet applications.		
• 029	Describe the purpose of a layered model.		
• 030	Observe the operation of Domain Name Server (DNS).		

• 031	Utilize File Transfer Protocol (FTP) service.		
<b>Exploring Wireless Technologies</b>			
• 032	Describe wireless technologies.		
• 033	Describe the various components and structure of a wireless local-area network (WLAN).		
• 034	Describe wireless local-area network (LAN) security issues and mitigation strategies.		
• 035	Configure wireless network components.		
• 036	Summarize and Configure wireless security technologies.		
<b>Describing Basic Security</b>			
• 037	Identify the various networking threats.		
• 038	Describe the various networking threats.		
• 039	Describe security procedures and applications.		
• 040	Describe the features of a firewall and how it can be used to protect against an attack.		
• 041	Summarize and Configure firewall and access policies.		
• 042	Perform vulnerability analysis.		
<b>Troubleshooting Wireless Networks</b>			
• 043	Utilize the troubleshooting process.		
• 044	Describe and use the troubleshooting process to document network problems.		
• 045	Describe the utilities used to verify Transmission Control Protocol (TCP)/Internet Protocol (IP) connectivity.		
<b>Identifying the Internet and Its Uses</b>			
• 046	Describe how the Internet is evolving and the various ways that businesses are using the Internet.		
• 047	Describe the importance of standards in the continuing growth of the Internet.		
• 048	Describe the purpose of an Internet Service Provider (ISP) and the services that it offers.		
• 049	Describe the hierarchical structure of the Internet and the purpose of the Point of Presence (POP) and the Internet Exchange Point (IXP).		
• 050	Identify the types of devices used by the ISP to provide services, and describe the importance of scalability in the ISP network.		
• 051	Describe the various network support teams that work at an ISP and the roles and responsibilities of each one.		
• 052	Use network utilities to interpret and correct ISP connectivity.		
<b>Exploring the ISP Help Desk</b>			

• 053	Describe the various roles of help desk and installation technicians.		
• 054	Describe the seven layers of the (Open System Interconnection) OSI Model and how the OSI Model is used in troubleshooting network issues.		
• 055	Identify common tools and diagnostic procedures of help desk technicians.		
• 056	Describe onsite procedures to resolve issues.		
<b>Enhancing Career Exploration and Employability Skills</b>			
• 057	Conduct a job search.		
• 058	Create or update a portfolio containing representative samples of student work.		