

DESE Model Curriculum: Network Administration (CIP Code: 11.0103)

GRADE LEVEL/UNIT TITLE: 11-12/Hardware

COURSE INTRODUCTION						
A knowledge and understanding of networking concepts prepare students for the career area of network administration. As technology advances, the demand will continue to increase for employees who are able to resolve computer network problems.						
Students apply problem-solving skills to business situations exploring computer maintenance activities. Students will analyze software problems, install software applications programs and customize defaults, connect components of a local area network, use basic network protocol, and troubleshoot network problems.						
UNIT DESCRIPTION				SUGGESTED UNIT TIMELINE		
Students will learn hardware considerations in planning a network, the benefits and risks to upgrades, and how to choose appropriate equipment.				2 weeks		
				CLASS PERIOD (min.)		
				50 minutes		
ESSENTIAL QUESTIONS						
1. What are the considerations when choosing a network adapter?						
2. What are the benefits and risks with upgrading existing technology?						
3. When planning a network, why do you have hardware considerations?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES		NBEA STANDARD				DOK
1. Verify operation of common peripherals	IT-I.1	IT-IV.4	IT-XII.3	COMM-I-B.3	3	
	IT-I.2	IT-V.1	IT-XII.4	COMM-I-C.1		
	IT-I.3	IT-V.2	IT-XIII.2	COMM-I-C.2		
	IT-I.4	IT-VI.1	IT-XIII.3	COMM-I-C.3		
	IT-II.1	IT-VI.2	IT-XIII.4	COMM-I-C.4		
	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.1		
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.2		
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.3		
	IT-III.1	IT-IX.1	COMM-I-A.4	COMM-I-D.4		
	IT-IV.1	IT-X.3	COMM-I-B.1	COMM-IV.1		
	IT-IV.2	IT-X.4	COMM-I-B.2	COMM-IV.2		
	IT-IV.3	IT-XII.2				
	2. Install and uninstall common peripherals	IT-I.1	IT-IV.4	IT-XII.3		COMM-I-B.3
IT-I.2		IT-V.1	IT-XII.4	COMM-I-C.1		
IT-I.3		IT-V.2	IT-XIII.2	COMM-I-C.2		
IT-I.4		IT-VI.1	IT-XIII.3	COMM-I-C.3		
IT-II.1		IT-VI.2	IT-XIII.4	COMM-I-C.4		

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	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.1	
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.2	
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.3	
	IT-III.1	IT-IX.1	COMM-I-A.4	COMM-I-D.4	
	IT-IV.1	IT-X.3	COMM-I-B.1	COMM-IV.1	
	IT-IV.2	IT-X.4	COMM-I-B.2	COMM-IV.2	
	IT-IV.3	IT-XII.2			
3. Install and configure a network adapter	IT-I.1	IT-V.1	IT-XIII.2	COMM-I-B.2	2
	IT-I.2	IT-V.2	IT-XIII.3	COMM-I-B.3	
	IT-I.3	IT-VI.1	IT-XIII.4	COMM-I-C.1	
	IT-I.4	IT-VI.2	MGMT-VIII-A.1	COMM-I-C.2	
	IT-II.1	IT-VIII.1	MGMT-VIII-A.2	COMM-I-C.3	
	IT-II.2	IT-VIII.2	MGMT-VIII-A.3	COMM-I-C.4	
	IT-II.3	IT-VIII.3	MGMT-VIII-A.4	COMM-I-D.1	
	IT-II.4	IT-IX.1	COMM-I-A.1	COMM-I-D.2	
	IT-III.1	IT-X.3	COMM-I-A.2	COMM-I-D.3	
	IT-IV.1	IT-X.4	COMM-I-A.3	COMM-I-D.4	
	IT-IV.2	IT-XII.2	COMM-I-A.4	COMM-IV.1	
	IT-IV.3	IT-XII.3	COMM-I-B.1	COMM-IV.2	
	IT-IV.4	IT-XII.4			
4. Install and configure network devices (routers, switches, wireless access points)	IT-I.1	IT-IV.4	IT-XII.3	COMM-I-B.3	3
	IT-I.2	IT-V.1	IT-XII.4	COMM-I-C.1	
	IT-I.3	IT-V.2	IT-XIII.2	COMM-I-C.2	
	IT-I.4	IT-VI.1	IT-XIII.3	COMM-I-C.3	
	IT-II.1	IT-VI.2	IT-XIII.4	COMM-I-C.4	
	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.1	
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.2	
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.3	
	IT-III.1	IT-IX.1	COMM-I-A.4	COMM-I-D.4	
	IT-IV.1	IT-X.3	COMM-I-B.1	COMM-IV.1	
	IT-IV.2	IT-X.4	COMM-I-B.2	COMM-IV.2	
	IT-IV.3	IT-XII.2			

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5. Install and configure a modem (dial-up and broadband)	IT-I.1 IT-I.2 IT-I.3 IT-I.4 IT-II.1 IT-II.2 IT-II.3 IT-II.4 IT-III.1 IT-IV.1 IT-IV.2 IT-IV.3	IT-IV.4 IT-V.1 IT-V.2 IT-VI.1 IT-VI.2 IT-VIII.1 IT-VIII.2 IT-VIII.3 IT-IX.1 IT-X.3 IT-X.4 IT-XII.2	IT-XII.3 IT-XII.4 IT-XIII.2 IT-XIII.3 IT-XIII.4 COMM-I-A.1 COMM-I-A.2 COMM-I-A.3 COMM-I-A.4 COMM-I-B.1 COMM-I-B.2	COMM-I-B.3 COMM-I-C.1 COMM-I-C.2 COMM-I-C.3 COMM-I-C.4 COMM-I-D.1 COMM-I-D.2 COMM-I-D.3 COMM-I-D.4 COMM-IV.1 COMM-IV.2	2
6. Perform basic hardware upgrades (e.g., hard drive, optical drive, memory, video and sound cards)	IT-I.1 IT-I.2 IT-I.3 IT-I.4 IT-II.1 IT-II.2 IT-II.3 IT-II.4 IT-III.1 IT-IV.1 IT-IV.2 IT-IV.3	IT-IV.4 IT-V.1 IT-V.2 IT-VI.1 IT-VI.2 IT-VIII.1 IT-VIII.2 IT-VIII.3 IT-IX.1 IT-X.3 IT-X.4 IT-XII.2	IT-XII.3 IT-XII.4 IT-XIII.2 IT-XIII.3 IT-XIII.4 COMM-I-A.1 COMM-I-A.2 COMM-I-A.3 COMM-I-A.4 COMM-I-B.1 COMM-I-B.2	COMM-I-B.3 COMM-I-C.1 COMM-I-C.2 COMM-I-C.3 COMM-I-C.4 COMM-I-D.1 COMM-I-D.2 COMM-I-D.3 COMM-I-D.4 COMM-IV.1 COMM-IV.2	2
7. Specify internal components for a network server and networking devices (routers, switches, and wireless access points)	IT-I.1 IT-I.2 IT-I.3 IT-I.4 IT-II.1 IT-II.2 IT-II.3 IT-II.4 IT-III.1 IT-IV.1	IT-IV.4 IT-V.1 IT-V.2 IT-VI.1 IT-VI.2 IT-VIII.1 IT-VIII.2 IT-VIII.3 IT-IX.1 IT-X.3	IT-XII.3 IT-XII.4 IT-XIII.2 IT-XIII.3 IT-XIII.4 COMM-I-A.1 COMM-I-A.2 COMM-I-A.3 COMM-I-A.4 COMM-I-B.1	COMM-I-C.1 COMM-I-C.2 COMM-I-C.3 COMM-I-C.4 COMM-I-D.1 COMM-I-D.2 COMM-I-D.3 COMM-I-D.4 COMM-IV.1 COMM-IV.2	3

DESE Model Curriculum: Network Administration (CIP Code: 11.0103)

GRADE LEVEL/UNIT TITLE: 11-12/Hardware

	IT-IV.2	IT-X.4	COMM-I-B.2	
	IT-IV.3	IT-XII.2	COMM-I-B.3	
8. Differentiate between routing and switching/bridging	IT-I.1	IT-IV.4	IT-XII.3	COMM-I-B.3
	IT-I.2	IT-V.1	IT-XII.4	COMM-I-C.1
	IT-I.3	IT-V.2	IT-XIII.2	COMM-I-C.2
	IT-I.4	IT-VI.1	IT-XIII.3	COMM-I-C.3
	IT-II.1	IT-VI.2	IT-XIII.4	COMM-I-C.4
	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.1
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.2
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.3
	IT-III.1	IT-IX.1	COMM-I-A.4	COMM-I-D.4
	IT-IV.1	IT-X.3	COMM-I-B.1	COMM-IV.1
	IT-IV.2	IT-X.4	COMM-I-B.2	COMM-IV.2
	IT-IV.3	IT-XII.2		
9. Differentiate between various current protocols (e.g., TCP/IP, DHCP, ARP)	IT-I.1	IT-IV.4	IT-XII.3	COMM-I-C.1
	IT-I.2	IT-V.1	IT-XII.4	COMM-I-C.2
	IT-I.3	IT-V.2	IT-XIII.2	COMM-I-C.3
	IT-I.4	IT-VI.1	IT-XIII.3	COMM-I-C.4
	IT-II.1	IT-VI.2	IT-XIII.4	COMM-I-D.1
	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.2
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.3
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.4
	IT-III.1	IT-IX.1	COMM-I-A.4	COMM-IV.1
	IT-IV.1	IT-X.3	COMM-I-B.1	COMM-IV.2
	IT-IV.2	IT-X.4	COMM-I-B.2	
	IT-IV.3	IT-XII.2	COMM-I-B.3	
10. Relate industry standard workstation hardware systems to network performance	IT-I.1	IT-IV.4	IT-XII.3	COMM-I-C.1
	IT-I.2	IT-V.1	IT-XII.4	COMM-I-C.2
	IT-I.3	IT-V.2	IT-XIII.2	COMM-I-C.3
	IT-I.4	IT-VI.1	IT-XIII.3	COMM-I-C.4
	IT-II.1	IT-VI.2	IT-XIII.4	COMM-I-D.1
	IT-II.2	IT-VIII.1	COMM-I-A.1	COMM-I-D.2
	IT-II.3	IT-VIII.2	COMM-I-A.2	COMM-I-D.3
	IT-II.4	IT-VIII.3	COMM-I-A.3	COMM-I-D.4

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	IT-III.1 IT-IV.1 IT-IV.2 IT-IV.3	IT-IX.1 IT-X.3 IT-X.4 IT-XII.2	COMM-I-A.4 COMM-I-B.1 COMM-I-B.2 COMM-I-B.3	COMM-IV.1 COMM-IV.2	
11. Evaluate equipment for purchase	IT-I.1 IT-I.2 IT-I.3 IT-I.4 IT-II.1 IT-II.2 IT-II.3 IT-II.4 IT-III.1 IT-IV.1 IT-IV.2 IT-IV.3 IT-IV.4 IT-V.1 IT-V.2 IT-VI.1	IT-VI.2 IT-VIII.1 IT-VIII.2 IT-VIII.3 IT-IX.1 IT-X.3 IT-X.4 IT-XII.2 IT-XII.3 IT-XII.4 IT-XIII.2 IT-XIII.3 IT-XIII.4 COMM-I-A.1 COMM-I-A.2 COMM-I-A.3	COMM-I-A.4 COMM-I-B.1 COMM-I-B.2 COMM-I-B.3 COMM-I-C.1 COMM-I-C.2 COMM-I-C.3 COMM-I-C.4 COMM-I-D.1 COMM-I-D.2 COMM-I-D.3 COMM-I-D.4 COMM-IV.1 COMM-IV.2 ENT-V-D.1	ENT-V-D.2 COMP-I.1 COMP-II.1 COMP-II.2 COMP-III.1 COMP-III.2 COMP-IV.1 COMP-IV.2 COMP-V.2 COMP-VI-G.1 COMP-VI-G.2 COMP-VI-G.3 COMP-VI-K.2 COMP-VI-K.3	2
12. Identify industry standard hardware systems (server, client, and network devices)	IT-I.1 IT-I.2 IT-I.3 IT-I.4 IT-II.1 IT-II.2 IT-II.3 IT-II.4 IT-III.1 IT-IV.1 IT-IV.2	IT-IV.3 IT-IV.4 IT-V.1 IT-V.2 IT-VI.1 IT-VI.2 IT-VIII.1 IT-VIII.2 IT-VIII.3 IT-IX.1 IT-XII.2	IT-XII.3 IT-XII.4 IT-XIII.2 IT-XIII.3 IT-XIII.4 COMM-I-A.1 COMM-I-A.2 COMM-I-A.3 COMM-I-A.4 COMM-I-B.1 COMM-I-B.2	COMM-I-B.3 COMM-I-C.1 COMM-I-C.2 COMM-I-C.3 COMM-I-C.4 COMM-I-D.1 COMM-I-D.2 COMM-I-D.3 COMM-I-D.4 COMM-IV.1 COMM-IV.2	1

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OBJ. #	INSTRUCTIONAL STRATEGIES
1-12	1. Teacher lectures and demonstrates advanced information on PCs, Laptops, printers and scanners. Teacher guides students in practice.
1-12	2. Teacher provides study guides for student continued practice.
OBJ. #	INSTRUCTIONAL ACTIVITIES
1-12	1. Students take notes and practice based on teacher demonstrations.
1-12	2. Students continue practice based on study guide materials.