NETWORK DESIGN & ADMINISTRATION CURRICULUM (0007)

	CORE CLASSES										
THE STUDENT SHALL BE ABLE TO:	CISC 151	CISC 152	CISC 153	CISC 154	NETW 101	NETW 105	NETW 142	NETW 151	NETW 188	NETW 271	NETW 295
1. Describe networking features and functions, network technologies, media and topologies, devices, management, tools and basic skills needed by network technicians					**I,E**			**I**			
2. Demonstrate the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks, including implementation and verification of connections to remote sites in WAN	**I**	**E**	**R**	**R**			**R**				
3. Identify roles of network servers and demonstrate skills related to installation, user accounts and groups, storage technologies, performance management, and troubleshooting and maintenance.									**I, E**		
4. Demonstrate competency in network security, compliance and operational security, threats and vulnerabilities, application, data and host security, access control and identity management and crytography						**I**				**I,E**	
5. Demonstrate oral and written communication and social skills appropriate to the profession	**R**	**R**	**R**	**R**	**R**	**R**	**R**	**R**	**R**	**R**	**R**

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Legend:
I= Introduced Students are first exposed to the concept / idea and are expected to apply the concept in limited scope.
E= Emphasized Students apply concept to varying / multiple situations of greater complexity than when initially introduced.
R= Reinforced Students are expected to understnd the concept upon entering the course and utilize the concept in conjunction with other concepts /ideas to solve problems.

Major Educational/Learning Goal: Describe networking features and functions, network technologies, media and topologies, devices, management, tools, and basic skills needed by network technicians
Supporting Objectives:
Define communications networks, connections, and architectures
Compare and contrast the OSI Reference Model and the TCP/IP model
Understand the fundamentals of data and signals
Identify different types of media used for transmitting data
Characterize local area networks, topologies, and network operating systems

Describe wide area networks
Explain the fundamentals of communication via the internet and the World Wide Web
Describe the network security, including controlling access, securing data and communications
Discuss network design and network management

Major Educational/Learning Goal: Demonstrate the ability to install, configure, operate, and troubleshoot medium-size route and switched networks, including implementation and verification of connections to remote sites in a WAN
Supporting Objectives:
Describe how a network works
Configure, verify, and troubleshoot a switch with VLANs and interswitch communications
Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network
Configure, verify, and troubleshoot basic router operation and routing on Cisco devices
Explain and select the appropriate administrative tasks required for a WLAN.
Identify security threats to a network and describe general methods to mitigate those threats
Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network
Implement and verify WAN links

Major Educational/Learning Goal: Identify roles of network servers and demonstrate skills related to installation, user accounts and groups, storage technologies, performance management, and troubleshooting and maintenance.
Supporting Objectives:
Understand device drivers, services, and server installation options.
Classify application servers, Web servers, remote access, file and print services and server virtualization.
Create and manage user accounts and groups, organizational units and containers, Active Directory infrastructure and group policy.
Identify storage technologies, RAID and disk types.
Describe major server harder components, performance monitoring and logs and alerts.
Define the steps in the startup process, business continuity, updates and troubleshooting methodology.

Major Educational/Learning Goal: Demonstrate competency in network security, compliance and operational security, threats and vulnerabilities, application, data and host security, access control and identity management and crytography
Supporting Objectives:
Define the security function and purpose of network devices, technologies and common protocols
Execute appropriate incident responses procedures and disaster recovery plans and procedures
Compare and contrast the concepts of confidentiality, integrity, and availability (CIA)
Analyze and differentiate among types of malware, attacks, social engineering attacks, wireless attacks, application attacks and the related mitigation and deterrent techniques
Implement assessment tools and techniques to discover security threats and vulnerabilities through the use of penetration testing and vulnerability scanning
Explain the importance of application security, host security and data security
Describe the function, purpose and best practices related to authentication, authorization and access control and implement appropriate security controls when performing account management
Use and apply appropriate cryptographic tools, public key infrastructure, certificate management and associated components.