CIST 1401 - Computer Networking Fundamentals (version 201003L)

Course Title	Course Development	Learning Support
Computer Networking Fundamentals	Standard	No

Course Description

Introduces networking technologies and prepares students to take the CompTIA's broad-based, vendor independent networking certification exam, Network +. This course covers a wide range of material about networking, including local area networks, wide area networks, protocols, topologies, transmission media, and security. Focuses on operating network management systems, and implementing the installation of networks. It reviews cabling, connection schemes, the fundamentals of the LAN and WAN technologies, TCP/IP configuration and troubleshooting, remote connectivity, and network maintenance and troubleshooting. Topics include: basic knowledge of networking technology, network media and topologies, network devices, network management, network tools and network security.

Pre-requisites

Pre-requisites: All Required

Program Admission

Co-requisites

Co-requisites: None

Course Length

	Minutes	Contact Hour	Semester Credit	WLU
Lecture:	**1500**	**30**		
Lab 2:	**3000**	**60**		
Lab 3:	**0**	**0**		
Total:	**4500**	**90**	**4**	
Semester Credit Hours:			**4**	**142.5**
Breakout Detail of Lab 3				
Practicum/Internship	**0**	**0**		
Clinical	**0**	**0**		

Competencies & Outcomes

Order	Description	Lecture	Lab 2	Lab 3	Total Min	Credit Hrs	Pract Intern	Clinical
1	**Networking Technologies**	300	600	0	900	0	0	0

Order	Description	Learning Domain	Level of Learning
1	Explain the purpose and function of networking protocols.	Cognitive	Knowledge
2	Identify computer/networking address formats and commonly used ports.	Cognitive	Knowledge
3	Identify the principles and characteristics of a routed network.	Cognitive	Knowledge
4	Describe and differentiate between various wired and wireless communication technologies.	Cognitive	Comprehension

Order	Description	Lecture	Lab 2	Lab 3	Total Min	Credit Hrs	Pract Intern	Clinical
2	**Network Media and Topologies**	300	600	0	900	0	0	0

Order	Description	Learning	Level of

		Domain	Learning
1	Categorize standard cable types and their properties.	Cognitive	Application
2	Identify and differentiate between common physical and logical network topologies and their characteristics.	Cognitive	Comprehension
3	Differentiate and implement appropriate wiring standards.	Cognitive	Comprehension
4	Categorize LAN and WAN technology types.	Cognitive	Application

3	**Network Devices**	255	510	0	765	0	0	0

Order	Description	Learning Domain	Level of Learning
1	Describe network devices and identify the OSI layer at which it operates.	Cognitive	Knowledge
2	Install and configure common network devices.	Psychomotor	Guided Response
3	Implement a basic wireless network.	Psychomotor	Guided Response

4	**Network Management**	300	600	0	900	0	0	0

Order	Description	Learning Domain	Level of Learning
1	Explain the purpose and function of each layer of the OSI model.	Cognitive	Knowledge
2	Explain different methods and rationales for network performance optimization.	Cognitive	Knowledge
3	Conduct network monitoring to identify performance and connectivity issues.	Psychomotor	Guided Response
4	Troubleshoot common connectivity issues and select an appropriate solution.	Psychomotor	Guided Response
5	Identify types of configuration management documentation.	Cognitive	Knowledge
6	Evaluate the network based on configuration management documentation.	Cognitive	Evaluation

5	**Network Tools**	180	360	0	540	0	0	0

Order	Description	Learning Domain	Level of Learning
1	Identify tools, diagnostic procedures and troubleshooting techniques for maintaining a network environment.	Cognitive	Knowledge
2	Demonstrate the appropriate use of network tools including scanners and testers.	Cognitive	Application
3	Explain how and when to use various command-line commands.	Cognitive	Knowledge

6	**Network Security**	165	330	0	495	0	0	0

Order	Description	Learning Domain	Level of Learning
1	Identify the fundamental principles of security concepts, technologies and features.	Cognitive	Knowledge

2	Explain the function of hardware and software security devices.	Cognitive	Knowledge
3	Implement, install, configure, upgrade and optimize security components.	Psychomotor	Guided Response
4	Identify tools, diagnostic procedures and troubleshooting techniques for maintaining a secure environment.	Cognitive	Knowledge
5	Explain the methods of network access and user authentication security.	Cognitive	Knowledge
6	Identify common security threats and mitigation techniques.	Cognitive	Knowledge

	Lecture	Lab 2	Lab 3	Total Min	Cred Hrs	Pract Intern	Clinical
Competency Totals:	**1500**	**3000**	**0**	**4500**	**4**	**0**	**0**