

Computer Science: Network Certificate

Course Abbreviation	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p><i>Course Level Learning Competencies</i></p> </div> <div style="text-align: center;"> <p>Program Student Learning Outcomes</p> </div> </div>	Use pattern recognition and logic to predict, analyze and solve problems	Work autonomously and/or in teams to effectively solve information technology concerns.	Demonstrate extensive knowledge of cyber security threats and concepts of information security.	Design, configure, and implement secure systems with best practices of networking and security
CIS115	Explain and Identify top threats to a computer network such as DDOS, password crackers, Spyware and Malware, and how to prevent them.	I	I	I	I
	Explain how to avoid online fraud and identity theft		I	I	
	Compare and contrast perimeter and layered approaches to network security using best practices		I	I	I
	Explain and demonstrate how to guard against malware, including viruses, worms and trojan horses and how they propagate, and understand how virus scanners operate.	I		I	I
	Describe related legal aspects to computer crimes, including cyber stalking			I	
	Explain security protocols and principles, such as CIA triad			I	I
	Describe key terms such as assurance, authenticity, cracker and firewall			I	
	Explain the basics of modern cryptographic concepts and methods; encryption, digital signatures and certificates	I		I	I
	Describe the basics of privacy, including the function of VPNs, browser settings and anonymity			I	
	Describe how to implement usable security such as passwords, authentication and physical security	I	I	I	I
Describe how to protect yourself against social engineering threats			I		
CIS117	Use the command line to gather information about the network and running processes	I	I		
	Open, edit, and save files using VI and/or Emacs	I	I		
	Combine tools and features such as filters, pipes, appends and redirections to solve problems	I	I		
	Read, write and debug bash scripts which include variables, control structures and system commands	I	I		I
	Utilize resources, online and off, to find additional information about the commands and system	I	I		I
CIS215	Demonstrate knowledge of a core set of security tools	R	R	R	R
	Use existing monitoring tools for intrusion detection	R	R	R	R
	Demonstrate proper use of cryptographic systems to secure information in storage and transit			R	R
	Demonstrate knowledge of tools analyzing intrusions	R	R	R	R
	Demonstrate knowledge of system hardening processes and policies	R	R	R	R
	Produce appropriate policies for a variety of security issues		R	R	R
	Demonstrate knowledge of data access and control systems	R	R	R	R

	Perform the basic steps of a security audit and vulnerability analysis	R	R	R	R
	Demonstrate the ability to use appropriate tools to recover from an intrusion		R	R	R
	Demonstrate the use of basic tools for cleaning systems		R	R	R
	Plan disaster recovery policies and procedures	R	R	R	R
CTN201	Demonstrate the differences among Cable types		I		I
	Construct and test cables using standard connectors and techniques		I		I
	Plan a network layout	I	I		I
	Use cable management hardware		I		I
	Use diagnostic procedures to locate network problems	I	I		I
	Understand layered protocols	I	I	I	I
	Detect and interpret network packets	I	I	I	I
	Describe the use of hubs and switches		I		I
	Troubleshoot routing issues	I	I		I
	Use a firewall		I	I	I
	Diagnose DNS problems	I	I		I
	Monitor and troubleshoot local networks	I	I	I	I
Create and manage a local network	I	I	I	I	
CTN222	Install, configure and manage Microsoft Servers		R		R
	Analyze and explain the use of Active Directory	R	R		R
	Compare and contrast the different types of user and group management		R	R	R
	Evaluate and classify various network security and backup strategies	R	R	R	R
	Detail Security strategies and tactics	R	R	R	R
	Install, configure and manage SharePoint (collaboration server)		R		R
	Install, configure and manage Exchange (eMail server)		R		R