

Networking

Course Description

This course is a study of the fundamentals of current networking technology. Students will learn to design, plan, implement, and support computer networks. The course introduces a full range of computer networkign from local area networks to wide area networks.

Course Code: 270601

Endorsements to teach: IT

Programs of Study to which this Course applies:

IT Operations Management

CIS. HS. 5. 7

Run computer diagnostics, implement solutions, and test for problem resolutions.

- CIS. HS. 5. 7. a Understand troubleshooting issues involving the boot process for a computer.
- CIS. HS. 5. 7. b Identify common symptoms and resolutions for hardware problems.
- CIS. HS. 5. 7. c Identify common symptoms and resolutions for software problems.

CIS. HS. 5. 8

Identify, evaluate, select, diagnose, and solve problems with various types of operating systems and utilities.

- CIS. HS. 5. 8. a Demonstrate the ability to effortlessly use all common operating systems.
- CIS. HS. 5. 8. b Diagnose and resolve operating system problems with appropriate tools.

CIS. HS. 5. 9

Demonstrate help desk concepts and operations while being able to effectively communicate solutions to a proposed problem.

- CIS. HS. 5. 9. a Describe and list steps used to solve technical problems.
- CIS. HS. 5. 9. b Identify and solve user problems.
- CIS. HS. 5. 9. c Employ customer service principles when working with consumers.

CIS. HS. 5. 10

Understand the difference between a client and a server.

- CIS. HS. 5. 10. a List the abilities and features of a client and server.
- CIS. HS. 5. 10. b Compare and contrast client and server functions.

CIS. HS. 5. 11

Understand the meaning and definitions of the various acronyms and terminology of the Internet.

- CIS. HS. 5. 11. a Understand how the Internet communicates through the terminology network professionals use (e.g., abstraction on the Internet (Hidden Layers), HTTP/HTTPS (Understand Protocol), URL (Uniform Resource Locator), Packets/Packet Switching, TCP/IP (Addressing more in depth), DNS (Domain Name Service), ICANN (Internet Corporation for Assigned Names and Numbers), IETF (Internet Engineering Task Force).

CIS. HS. 5. 12

Understand the key role abstraction plays in the relationship between the hidden layers of the Internet on the Internet's functionality

- CIS. HS. 5. 12. a Understand the various ways to find the IP address on a computer.
- CIS. HS. 5. 12. b Use the Developer Tools in an Internet browser to explore HTTP requests, status codes, and HTTP exchanges

CIS. HS. 5. 13

Identify the components and functions of all elements of Von Neumann architecture in modern computing devices.

- CIS. HS. 5. 13. a Label and diagram the Von Neumann process including the following terms: input, output, control unit, arithmetic logic unit, and memory (internal and external).

CIS. HS. 5. 14

Identify computer classifications and hardware.

- CIS. HS. 5. 14. a Differentiate between major hardware components and their functions.
- CIS. HS. 5. 14. b Identify types of computer storage devices.

CIS. HS. 5. 15

Describe elements and types of information processing.

CIS. HS. 5. 15. *a* Distinguish between types of processing (e.g., batch, interactive, event-driven, object-oriented).

CIS. HS. 5. 16

Research and critique different solutions to technical problems and propose a cost benefit analysis to different solutions.

CIS. HS. 5. 16. *a* Research the best computing technology for different clients based on expectations of performance, longevity, budget, and system storage availability constraints.

CIS. HS. 5. 16. *b* Develop criteria for purchasing or upgrading computer system hardware.

CIS. HS. 5. 17

Demonstrate the use of networking concepts in the support and maintenance of the computers on a network.

CIS. HS. 5. 17. *a* Describe basic network classifications, topologies, and network operating systems.

CIS. HS. 5. 17. *b* Identify the characteristics and uses of network components (e.g., hub, switches, routers, firewall).

CIS. HS. 5. 17. *c* Identify the characteristics of LAN transmission methods, standards, and protocols.

CIS. HS. 5. 17. *d* Explain the difference between basic point-to-point (PTP) and point-to-multipoint (PTM) network topologies.

CIS. HS. 5. 18

Understand the key role abstraction plays in the relationship between the hidden layers of the Internet on the Internet's functionality.

CIS. HS. 5. 18. *a* Understand how to use Command Prompt tools on a windows machine to access network information.

CIS. HS. 5. 18. *b* Sniff packets and dissect captured packets using open source pcap software such as Wireshark, Cloudshark, or WinPcap.

CIS. HS. 5. 19

Perform the functions of a system administrator employing various organizational information resource management requirements.

CIS. HS. 5. 19. *a* Create, update, and maintain file systems.

CIS. HS. 5. 19. *b* Exercise backup and system restoration processes.

CIS. HS. 5. 19. *c* Configure a network to perform a specific function.

CIS. HS. 5. 19. *d* Implement simple security administration.

CIS. HS. 5. 19. *e* Perform user and group administration on a system.

CIS. HS. 5. 19. *f* Create a virtual network environment.