COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Networking 1
COURSE NUMBER	CIST 0117
DIVISION	Career and Technical Education
DEPARTMENT	CIST
CIP CODE	11.0801
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3 Lab:
PREREQUISITES	None

COURSE DESCRIPTION

The students in this course will be introduced to LAN (local area networks), MAT (metropolitan area networks) and WAN (wide area networks). The students will be study network topologies, network protocols, network hardware, and network software. Students will also perform experiments and troubleshoot common network failures.

PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit: https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. Demonstrates the necessary skills to score at least a 70% in the Network 1 course.
2. Obtain the skills necessary to pass the Certification COMPTIA SEC+ certification.
3. Applies judicious and ethical offensive security techniques using knowledge gained through cyber security coursework.
4. Obtain the skills necessary to pass the NET+ certification.

TEXTBOOKS

http://kckccbookstore.com/

METHOD OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

I. Introduction to Networks and Networking Concepts
   A. What is Networking?
   B. Networking Fundamentals
   C. Local and Wide Area Networks
   D. Network Types
   E. Selecting the Right Type of Network
II. Network Design Essentials
   A. Network Design
   B. Designing a Network Layout
   C. Standard Topology
   D. Hubs
   E. Switches
   F. Variations of the Major topology
   G. Selecting a Topology
   H. Constructing a Network Layout
III. Networking Media
   A. Networking Cabling: Tangible Physical Media
   B. Primary Cable Types
   C. Wireless Networking Intangible Media
IV. Network Interface Cards
   A. Network Interface Card (NIC) Basics
   B. Choose Network Adapters for Best Performance
   C. Drive Software
V. Making Networks Work
   A. OSI and 802 Networking Models
VI. Network Communications and Protocols
   A. Function of Packets in Network Communications
   B. Protocols
   C. Putting Data on the Cable: Access Methods
VII. Network Architectures
   A. Ethernet
   B. Other Networking Alternatives
   C. Broadband Technologies
   D. Broadcast Technologies
   E. Asynchronous Transfer Mode (ATM)
VIII. Simple Network Operations
   A. Network Operating Systems
   B. Software Components of Networking
   C. Network Services
   D. Network Applications
IX. Understanding Complex Networks
   A. Interconnectivity in Multivendor Environments

B. Implementing Multivendor Solutions
C. Centralized vs. Client/Server Computing
D. Client/Server Model in a Database Environment
E. Client/Server Architecture
F. Advantages of Working in a Client/Server Environment

X. Network Administration Support
A. Managing Networked Accounts
B. Managing Network Performance
C. Managing Network Data Security
D. Avoiding Data Loss

XI. Enterprise and Distributed Networks
A. Modems in Network Communications
B. Carries
C. Remote Access Networking
D. Creating Larger Networks

XII. Wide Area and Large-Scale Networks
A. Wide Area Network Transmission Technologies
B. Advanced WAN Technologies

XIII. Solving Network Problems
A. Preventing Problems with Network Management and Planning
B. Network Troubleshooting

XIV. Understanding and Using Internet Resources
A. What's on the Internet?
B. Locating Internet Resources
C. Making an Internet Connection

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon completion of the course, the student will:

A. Discuss the concept of local area networking.
1. Define and explain basic LAN concept.
2. Discuss the positive and negative characteristics of LAN Options.
3. Identify bridges, routers, and gateways.
4. Identify and select proper network hardware for application.
5. Identify and select proper network software for application
6. Identify the five functional areas of LAN management.
7. Design, construct and operate a PC peer-to-peer network.

B. Understand the capabilities of LAN.
8. Compare 10baset to 100baset.
9. Configure and compare STP and UTP cables.
10. Configure and operate a peer-to-peer network using Microsoft Windows O.S.

C. Compare various LAN available in the market.

11. Discuss Network Operating Systems.

D. Discuss the transmission media and technical factors related to transmission media.
12. Discuss wireless networking.
13. Identify Microsoft LAN Manager and Windows characteristics.
14. Discuss the future of networking

E. Understand and Ethernet technology.
15. Explain how to select the proper LAN for desired application.
16. Demonstrate or explain the installation of a NIC.

F. Identify different topologies and protocols.
17. Demonstrate an understanding of MAC addresses.
18. Demonstrate an understanding of IP addresses.

G. Troubleshoot the LAN network.
19. Demonstrate an understanding of Subnets.
20. Demonstrate an understanding of router configuration.
21. Demonstrate an understanding of network cabling.
22. The student will demonstrate an ability to meet I.T. deadlines.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.