COURSE SYLLABUS

LAST REVIEW   Fall 2022

COURSE TITLE   Networking 2

COURSE NUMBER   CIST 0158

DIVISION   Career and Technical Education

DEPARTMENT   CIST

CIP CODE   11.0901

CREDIT HOURS   4

CONTACT HOURS/WEEK Class: 3   Lab: 2   Clinical:

PREREQUISITES   CIST 0117

COURSE DESCRIPTION

This course examines how routers relay data on Local Area Networks. It covers installation, configuration, and troubleshooting of routers. The students will learn how to configure IP on different platforms and use simple networking tools for analysis. Students will have hands-on experience with a variety of network layouts in a lab environment equipped with multiple operating systems (Windows XP, Windows 2000, Cisco IOS, and others). This class uses the Cisco Academy Material, CCNA semester 2.

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 Networking
   A.   The Networking Model
         1. Network Evolutions
         2. Network Types and Devices
             a) LANS and WANS
         3. Network Design Goals
         4. Layered Models
             a) Data Encapsulation
             b) Application and Upper layers
             c) Physical and data link layers
                 (1) Ethernet
                 (2) Token Ring
                 (3) FDDI
                 (4) WAN
   B.   Network Layer and Path Determination
         1. Routed versus Routing
         2. Static versus Dynamic Routes
         3. Routing Protocols
         4. Basic Routing Processes
   C.   Basic Router Operations
         1. Router Start-up
         2. Configuration Sources
         3. User Interfaces
         4. Passwords
         5. User versus EXEC configuration modes
         6. Context Sensitive help
         7. Examining Router Status
   D.   Configuring Router
         1. Load Sources
         2. Fundamental Configuration Tasks
         3. Interface Configuration Tasks
         4. Verifying and Saving Configuration Files
         5. Discovering and Assessing Other Routers
             a) Cisco CDP
             b) Examining CDP Status
II. Networking Protocol Suites
   A.   TCP/IP Overview
   B.   IP Addressing
         1. Subnetting
         2. Subnet Planning

3.   Configuration Commands
      C.   IP Routing Configuration
             1.   Configuration of Static Routes and Dynamic Routing
             2.   RIP versus IGRP and EIGRP
             3.   Configuring Novell IPX Routing
             4.   Configuring Apple Talk Routing
             5.   Basic Traffic Management with Access Lists
 III.   Wide-Area Networking
      A.   Introduction to WAN Connections
             1.   Configuration of Basic WAN Services
      B.   X.25 Configuration Overview
      C.   Frame Relay Configuration Overview

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon completion of the course, the student will:

A.   Describe in detail the OSI layers.
B.   Differentiate between various LAN technologies, especially the varieties of Ethernet.
C.   Work through a class B IP address planning example, on their own, without notes or a calculator.
D.   Give a simple description of a router (including its role as a WAN device) and a simple explanation of the process of routing.
E.   Build the semester 2 topology given routers, switches, cables, hubs, and transceivers.
F.   Log into the router, enter and explain 6 different router modes, use editing features and context-sensitive help, individually.
G.   Use the router show commands, router testing commands, and router debug commands when prompted for specific information.
H.   Individually but using the Engineering Journal.
I.   Flowchart the router boot sequence.
J.   Configure a router using the setup command and dialog.
K.   Flowchart the process for altering and saving the router configuration file.
L.   Perform a CLI configuration of a router (including interfaces and routing protocols).
M.   Perform the password recovery procedure from memory.
N.   Flowchart the ways a router can obtain an IOS image.
O.   Use the configuration register calculator.
P.   Use the IOS commands relevant to loading and
Q.   Monitoring IOS images.
R.   Flowchart the complete CLI configuration of a router, including specific IOS commands.
S.   Individually with an IP-labeled topology, perform a complete CLI configuration of a router.

T. Create a variety of diagrams to explain TCP in detail.
U. Do a complete Class B IP address Planning problem.
V. Understand the IOS commands and will demonstrate those commands on a router.

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.