COURSE DESCRIPTION

Prerequisites: ITCC 1401 or instructor approval.

A course in the Routing and Switching technologies essentials. The focus of this course is on learning the architecture, components, and operations of routers and switches in a small network. In this course, you will learn how to configure a router and a switch for basic functionality.

This is a 4 credit hour course. (3 lec. 4 lab.)

END OF COURSE OUTCOMES

By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

STUDENT LEARNING OUTCOMES

Upon successful completion of ITCC 1404 CCNA Routing and Switching: Routing and Switching Essentials the student will be able to:

- Understand and describe basic switching concepts and the operation of Cisco switches
- Understand and describe the purpose, nature, and operations of a router, routing tables, and the route lookup process
- Understand and describe how VLANs create logically separate networks and how routing occurs between them
- Understand and describe dynamic routing protocols, distance vector routing protocols, and link-state routing protocols
- Configure and troubleshoot static routing and default routing (RIP and RIPng)
- Configure and troubleshoot an Open Shortest Path First (OSPF) network
- Understand, configure, and troubleshoot access control lists (ACLs) for IPv4 and IPv6 networks
- Understand, configure, and troubleshoot Dynamic Host Configuration Protocol (DHCP) for IPv4 and IPv6 networks
- Understand, configure, and troubleshoot Network Address Translation (NAT) operations

COURSE MATERIALS


Provided: Student Login for on-line course materials
  Cabling supplies and tools
  Curriculum available online

A student of this institution (El Centro College) is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Major Course Requirement

Students will review Comprehensive Lecture on each chapter topic.

Students will perform Syntax Checker Activities to practice entering Cisco IOS commands.

Students will complete Chapter Exam, which evaluate the students’ knowledge in each of the topic areas.

Students will complete an objective comprehensive Final Exam which will evaluate the student’s understanding of the concepts of Routing Protocols and Concepts in each unit.

Students will complete a Skills Based Assessment - Student Training Exam which will evaluate the student’s skills performance of the fundamentals of Routing Protocols and Concepts.

Students will complete a Course Feedback Survey which will evaluate the student’s attitude about the course and individual knowledge and skills.

Students will complete Class Activities, Interactive Activities, Packet Tracer, Hands-on Labs related to concepts for each chapter including reflections, challenges, and cleanup which will evaluate the students skills performance of the following topics:

Purpose and functions of various network devices such as routers, switches, bridges, and hubs

- Enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q
- Configure and troubleshoot basic operations of a small switched network
- Configure and verify static routing and default routing
- Configure and troubleshoot basic operations of routers in a small routed network
- Configure and troubleshoot VLANs and inter-VLAN routing
- Configure, monitor, and troubleshoot ACLs for IPv4 and IPv6
- Configure, monitor, and troubleshoot ACLs for IPv4 and IPv6
Subject Matter

Topics covered in the course include:
  - Introduction to Switched Networks
  - Basic Switching Concepts and Configuration
  - VLANs
  - Routing Concepts
  - Inter-VLAN Routing
  - Static Routing
  - Routing Dynamically
  - Single-Area OSPF
  - DHCP
  - Network Address Translation for IPv4

Disclaimer
The provisions contained in this syllabus do not constitute a contract between the student and El Centro College. These provisions may be changed at the discretion of the Coordinator/Instructor. When necessary, appropriate notice of such changes will be given to the student.

The instructor-of-record may provide additional information to enhance the course to meet the needs of the enrolled students, provided that the enhancements do not conflict with the official course syllabus.

Policies
Students should click on the links below and read all of these policies.

General institutional policies
Course-related institutional policies