Lecture Contact Hours: 32-36; Homework Hours: 64-72; Total Student Learning Hours: 96-108
Laboratory Contact Hours: 48-54; Homework Hours: 0; Total Student Learning Hours: 48-54

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

COMPUTER AND INFORMATION SCIENCE 201 – CISCO ACADEMY – INTRODUCTION TO NETWORKING

2 hours lecture, 3 hours laboratory, 3 units

Catalog Description
This is the first of four courses designed to provide knowledge, experience and skills in current and emerging networking technology. This course is also designed to help students prepare for the professional certification as a Cisco Certified Network Associate (CCNA). This course introduces you to fundamental networking concepts and technologies. In this course, you will learn both the practical and conceptual skills that build the foundation for understanding basic networking. Students will: examine human versus network communication and see the parallels between them; be introduced to the two major models used to plan and implement networks: OSI and TCP/IP; learn about network devices and network addressing schemes, and discover the types of media used to carry data across the network. This course maps to the current Cisco Certified Networking Associate curriculum version.

Prerequisite
None

Recommended Preparation
"C" grade or higher or "Pass" in CIS-125 or equivalent

Entrance Skills
Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:
1) Basic computer skills including the use of an Internet browser, Windows operating system, MS Word, and MS Excel.
2) Basic familiarity with networking protocols such as HTTP, FTP, POP, SMTP, ICMP, DHCP, DNS.

Course Content
1) Exploring the Network
2) Configuring a Network Operating System
3) Network Protocols and Communications
4) Network Access
5) Ethernet
6) Network Layer
7) Transport Layer
8) IP Addressing
9) Subnetting IP Networks
10) Application Layer
11) Building small networks

Course Objectives
Students will be able to:
1) Describe network topologies and devices along with the basic characteristics of small and medium networks.
2) Describe the features and functions of Cisco IOS devices.
3) Describe the roles and characteristics of network protocols and standards in network communications.

4) Describe the role and characteristics of each of the layers of the Open Systems Interconnection (OSI) model.
5) Explain the purpose and operation of network routers and switches.
6) Calculate IPv4 and IPv6 addressing to a basic network topology.
7) Build and configure a small network topology consisting of routers, switches, and workstations.
8) Configure basic router security and router configuration backup.

Method of Evaluation
A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.
1) Chapter exams that measure students' ability to define and appropriately use networking technology concepts and terminology to describe networking processes, protocols, functions and features.
2) Comprehensive final exam that measures students' ability to synthesize and apply course concepts to a variety of networking scenarios.
3) Comprehensive skills exam that measures students' ability to practically apply network, design, configuration and hardware connectivity techniques to LAN environments.
4) Lab exercises that require students to apply course concepts and skills in order to implement LAN solutions, compute IPv4 network addressing to network problems defined by the instructor, and connect and configure LAN devices.

Special Materials Required of Students
USB flash drive

Minimum Instructional Facilities
Smart computer lab with whiteboards, Internet browser, Internet connectivity, software, printer; network connection not connected to school academic resources; 19" equipment racks populated with cross-connect patch panels, power surge protectors, access servers, VM servers; Cisco Access routers and switches; interconnecting CAT 5E and serial cabling; lab desks with computers not connected to the school academic network resources; computer server; storage cabinets

Method of Instruction
1) Online computer-based reading assignments
2) Instructor and individual student mentoring
3) Practical application assignments
4) Topic-focused mini-lectures for small groups of students

Out-of-Class Assignments
1) Read online curriculum and assignment instructions
2) Complete Packet Tracer assignments and online quizzes
3) Review online resources, including reference materials and videos

Texts and References
1) Required (representative example): Text is provided online at *www.netacad.com*
2) Supplemental (optional reference texts): CCNA 200-301 Official Cert Guide Library, Wendell Odom, ISBN 9781587147142, 2020

Exit Skills
Students having successfully completed this course exit with the following skills competencies and/or knowledge:
1) Ability to describe network topologies and devices along with the basic characteristics of small and medium networks.

2) Ability to describe the features and functions of Cisco IOS devices.
3) Ability to describe the roles and characteristics of network protocols and standards in network communications.
4) Ability to describe the role and characteristics of each of the layers of the Open Systems Interconnection (OSI) model.
5) Ability to explain the purpose and operation of network routers and switches.
6) Ability to calculate IPv4 and IPv6 addressing to a basic network topology.
7) Ability to build and configure a small network topology consisting of routers, switches, and workstations.
8) Ability to configure basic router security and router configuration backup.

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
1) Build, configure, manage and troubleshoot a small local area network topology consisting of Cisco routers, Cisco switches, and PCs with multiple broadcast and collision domains and basic network security techniques applied using the following network protocols: IPv4, IPv6, SSH, FTP, and TFTP.