CIS 337 – Internetworking Basics

Course Description

This course introduces students to the OSI model and LAN concepts. Topics include networking devices that operate at Physical, Data Link, and the Network layers of the OSI model, LAN and internetworking cabling requirements, IP addressing and subnetting, collision and broadcast domains, LANs, WANs, and TCP / IP. Also included are labs to demonstrate router startup, router setup, configuring router interfaces, and the basics of network management.

Instructional Materials

McQuery, S. (2008). *Internetworking Cisco Network Devices, Part 1 (ICND1)* (2nd ed.). Indianapolis, IN: Cisco Press.

McQuery, S. (2008). *Internetworking Cisco Network Devices, Part 2 (ICND2)* (3rd ed.). Indianapolis, IN: Cisco Press.

Course Learning Outcomes

1. Summarize the basic components and media of network systems and distinguish between LANs, MANs, and WANs.
2. Describe and differentiate the different layers of the Open Systems Interconnection (OSI) and TCP / IP protocol stack.
3. Compare, contrast, create, and assign IP addresses to Class A, B, C, D, and E networks.
4. Describe the TCP / IP protocols and various functions among the application layer.
5. Configure and troubleshoot router and switches the Internetwork Operating System (Cisco IOS) using the Console Command Line Interface (CLI).
6. Describe the difference between connection-oriented and connection-less protocols.
7. Demonstrate the use of operating system commands to monitor, control, and configure Internetworking environments.
8. Describe and implement VLANs on a computing network.
9. Compare and contrast dynamic routing, distance vector routing, and link-state routing protocols.
10. Describe organizational security considerations in an Internetworking environment.
11. Use technology and information resources to research issues in Internetworking.
12. Write clearly and concisely about basic internetworking using proper writing mechanics and technical style conventions.