The Cisco Networking Fundamentals certificate offers coursework designed to help students acquire the knowledge to install, configure and operate Local Area Network (LAN), Wide Area Network (WAN) as well as routing and switching implementations and management. This certificate covers the body of knowledge for the Cisco® Certified Network Associate (CCNA®) exam in preparing the student to install and configure Cisco® switches and routers in multiprotocol internetworks using LAN and WAN interfaces.

**CCNA 003 Requirements**

The Cisco Networking Fundamentals requires a minimum of 12 credits, which may come from a combination of required and elective courses.

**CIT245 Local Area Networking Fundamentals**
This course addresses the fundamentals of local area networking (LAN). Students will learn about Ethernet LANs, wireless LANs (WLAN), and LAN connections. This will include securing the network, transmission control protocol/internet protocol (TCP/IP), troubleshooting switches, WLAN security, and constructing a network address scheme. (3 credits)

**CIT249 Wide Area Network Environment**
This course provides students with the knowledge and skills necessary to implement and support a small- to medium-sized network using wide area networking technologies. This course covers wide area networks (WAN) connections, network environment management, small network implementation, and medium-sized switched network construction. It includes enabling the Internet connection, router startup and configuration, and securing the expanded network. (3 credits)

**CIT274 Routing And Switching Implementations**
This course provides students with the knowledge and skills necessary to design, build, and maintain routing and switching technologies. Instruction covers constructing medium-sized routed networks, implementing single-area open shortest path first (OSPF) routing protocol, enhanced interior gateway routing protocol (EIGRP), and applying access control lists (ACLs). It includes a review of routing operations and implementing variable length subnet masking (VLSM). (3 credits)

**CIT276 Routing And Switching Management**
This course provides the knowledge and skills necessary for routing and switching management. The course covers address space management and local area network (LAN) extension into a wide area network (WAN). This includes network address translation (NAT) and port address translation (PAT), virtual private network (VPN) solutions, and frame relay connectivity. (3 credits)