

**I. COURSE INFORMATION**

- A. Computer Science 125 Cisco Network Basics
- B. 3 credit hours
- C. Online textbook: <https://www.netacad.com/home>
- D. Prerequisites: None

**II. COURSE DESCRIPTION**

This introductory course describes the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the course. Students will learn to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

**III. LEARNING OUTCOMES**

- A. Understand and describe the devices and services used to support communications in data networks and the Internet
- B. Understand and describe the role of protocol layers in data networks
- C. Understand and describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments
- D. Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks
- E. Share resources such as files and printers among multiple computers
- F. Explain fundamental Ethernet concepts such as media, services, and operations
- G. Build a simple Ethernet network using routers and switches
- H. Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations
- I. Utilize common network utilities to verify small network operations and analyze data traffic

**IV. MAJOR CONTENT AREAS**

- A. Exploring the Network
- B. Operating Systems
- C. Network Protocols and Communications
- D. Application Layer
- E. Transport Layer
- F. Network Layer
- G. IP Addressing
- H. Subnetting IP Networks
- I. Ethernet
- J. It's a Network

**V. ASSIGNMENTS** (may include but are not limited to)

- A. Chapter and final exams
- B. Lab assignments
- C. Packet Tracer assignments
- D. Capstone project
- E. Final lab skills exam

**VI. EVALUATION METHODS** (may include but are not limited to)

- A. Written objective and/or subjective exams
- B. Practical laboratory assignments and exams
- C. Class projects