

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES & SKILLED TRADES DIVISION
Computer Information Technology Program
Revision Date: October 2025

I. CATALOG DESCRIPTION Course

Number: INFO1283
Course Title: Networking Fundamentals
Corequisite(s): INFO1171
Catalog Description: This course provides an overview of computer networking as seen from the eyes of a network administrator. It guides students from an elementary knowledge of computer networking to advanced fundamentals related to Ethernet networks; router configuration; TCP/IP networks and models; routing protocols; local, campus, and wide area network configuration; basic network security; wireless and wired networking; voice over IP; and network servers. After completing this course, the student will have gained a solid knowledge base in the communication process of computer networks.
Credit Hours: 3
Class Hours: 45
Lab Hours: 0
Total Contact Hours: 45

II. COURSE OBJECTIVES: *Course will:*

- A. Understand the wireless and wired setup of a network through various media
- B. Evaluate different networking components
- C. Demonstrate troubleshooting skills to solve complex networking problems
- D. Work with software that hosts numerous network devices and media
- E. Understand security measurements to develop a secure network
- F. Configure networking devices to support the network infrastructure.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Configure and setup intermediary devices in a network
 - 2. Identify tasks involved with network setup and structure
 - 3. Recognize networking protocols and terminologies
 - 4. Allow device access to networks
 - 5. Describe the different types of networks and their functionalities
 - 6. Differentiate the different parts of an IP address and CIDR Notation
 - 7. Managing networking infrastructure and components
 - 8. Demonstrate an understanding of both the TCP/IP and OSI layer models
 - 9. Describe the purpose of the PDU headers and the main fields within them
 - 10. Troubleshoot networking problems and analyzing solutions
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #3: Critical Thinking & Problem Solving
 - Outcome 5: Acquire and integrate knowledge and construct relationships across disciplines.

IV. CONTENT/TOPICAL OUTLINE

- A.** Introduction to Computer Networks
- B.** Physical Layer Cabling: Twisted-Pair
- G.** Physical Layer Cabling: Fiber Optics
- H.** Wireless Networking
- I.** Interconnecting the LANs
- J.** TCP/IP and OSI Models
- K.** IP and MAC Addressing and Port Numbers
- L.** Introduction to VLSM
- M.** Introduction to router operation and configuration
- N.** Introduction to Switch operation and configuration
- O.** The concept of Routing Protocols and why they are needed
- P.** Managing the Network Infrastructure
- Q.** Basic Network Security
- R.** Cloud Computing and Virtualization
- S.** Codes and Standards

V. INSTRUCTIONAL MATERIALS

Classroom Course:

- A.** Required Text: As identified by the instructors of this course Resources: Computer and Internet Access

VI. METHODS OF PRESENTATION/INSTRUCTION

- A.** Methods of presentation typically include a combination of the following:
 - 1.** Technology enhanced lectures
 - 2.** Group discussions
 - 3.** Engaged learning activities
 - 4.** In-class Demonstrations

VII. METHODS OF EVALUATION

- A.** Methods of evaluation traditionally includes a combination of the following:
 - 1.** Quizzes
 - 2.** Projects and Exercises
 - 3.** Tests

VIII. SPECIFIC COURSE REQUIREMENTS

- A.** This course will not qualify as a prerequisite if the student receives a final grade below a "C" (70%).