

**SOUTHEAST COMMUNITY COLLEGE**  
**CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION**  
**Computer Information Technology Program**  
**Revision Date: August 26, 2019**

**I. CATALOG DESCRIPTION**

Course Number: INFO2697  
Course Title: Networking Capstone  
Prerequisite(s): INFO1492, INFO2595  
Catalog Description: This is a project-based course focused on designing, implementing and maintaining network infrastructures using a virtual environment. Different types of servers, clients, and firewall/routers are used.  
Credit Hours: 3  
Class Hours: 45  
Lab Hours: 0  
Total Contact Hours: 45

**II. COURSE OBJECTIVES:** *Course will:*

- A. Verify knowledge of network management techniques learned in previous CIT courses.
- B. Evaluate students' ability to gather information, analyze data, and apply it to a network environment.
- C. Assess decision-making skills when presented with a variety of enterprise network scenarios.
- D. Measure students' ability to implement a real-world network environment.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:**

- A. Student Learning Outcomes: *Student will be able to:*
  - 1. Recommend various network designs and implementations.
  - 2. Design and implement a network using existing knowledge and skills.
  - 3. Compile and analyze information from online and vendor-provided resources.
  - 4. Apply troubleshooting techniques to solve network problems.
  - 5. Use teamwork and communication skills.
  - 6. Construct and create a diverse computer network.
- B. General Education Learning Outcomes (GELOs)
  - 1. GELO #3: Critical Thinking & Problem Solving  
Outcome 2: Synthesize information to arrive at reasoned solutions to problems.

**IV. CONTENT/TOPICAL OUTLINE**

- A. Northwest Technical College (NWTC) network needs and expectations.
  - 1. Plan NWTC storage requirements.
  - 2. Simulate server hardware and network hardware purchase.
  - 3. Document network layout.
  - 4. Plan the NWTC Active Directory Tree.
  - 5. Design logical network addressing for the NWTC network.
- B. Installation, setup and configuration of the NWTC:
  - 1. Router/firewall
  - 2. Active Directory Domain Services (AD DS)
  - 3. Domain Controllers (DC) with DNS and DHCP
  - 4. AD Member Server
  - 5. Linux server in a DMZ with web and ftp services

- C. Installation and setup of Windows Clients in the AD environment.
- D. Creation of NWTC user accounts and global security groups.
- E. Creation of the NWTC shared folders and setup share permissions.
- F. Setup of NWTC shared folder NFS permissions.
- G. Planning and implementation of network mapped drives.
- H. Delegation of AD control to key AD organizational units.
- I. Creation and deployment of the NWTC printing system.
- J. Establishment of user and computer policies using Group Policy Objects (GPOs).
- K. Use of Windows Software Update Service to deploy Windows Updates to servers and clients.
- L. Setup of Software distribution with GPOs to the Windows clients.
- M. Creation and implementation of a network-based backup solution.

**V. INSTRUCTIONAL MATERIALS**

- A. Required Text(s): None
- B. Other Resources: Network Capstone Supplemental Materials and NWTC project files.
- C. Computer and Internet access

**VI. METHODS OF PRESENTATION/INSTRUCTION**

- A. Methods of presentation typically include a combination of the following:
  - 1. Technology enhanced lectures and classroom discussions
  - 2. In-class hands-on assignments
  - 3. Interactive group activities

**VII. METHODS OF EVALUATION**

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
  - 1. Attendance and/or participation activities
  - 2. Homework and hands-on assignments
  - 3. Research projects