

COMMON COURSE NUMBER: CET 2486C

COURSE TITLE: Networking Technology

CREDIT HOURS: 2

CONTACT HOURS BREAKDOWN:

| | |
|---------------------------|-------------------------------|
| Lecture/Discussion | <u> 32 </u> |
| Lab | <u> 16 </u> |
| Other | <u> 00 </u> |
| Contact Hours/Week | <u> 3 </u> |

CATALOG COURSE DESCRIPTION:

Prerequisite:

Corequisite:

This course is designed to introduce the student to Advanced Networking Technology. Topics will include Networking and the OSI model, troubleshooting the network and network optimization.

General Education Requirements - Associate of Arts Degree, meets Area(s):

General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Networking and the OSI Model
2. OSI Communications
3. OSI Networking
4. OSI Services
5. Troubleshooting Fundamentals
6. Troubleshooting Tools
7. Troubleshooting Network Topology Components
8. Troubleshooting Network Storage Devices
9. Troubleshooting Network Workstations
10. Troubleshooting Network Printing
11. Network Optimization

I. Course Overview:

Upon successful completion of this course, the students should be able to demonstrate a knowledge of the OSI model, optimization, and troubleshooting of networks and network devices.

II. Units:

Unit 1. Networking and the OSI Model

General Outcome:

- 1.0 The students should be able to describe the physical components of a network, services available on a network and basic structure of the OSI model.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Recognize the different models, elements, and management responsibilities of a network.
- 1.2 Discuss the services available on a network.
- 1.3 Describe the basic structure and history of the OSI model.

Unit 2. OSI Communications

General Outcome:

2.0 The students should be able to describe the function of Physical and Datalink layers and their implementation.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Recognize the function and devices used with Physical layer.
- 2.2 Recognize the function and devices used with Datalink layer.
- 2.3 Implement Physical and Datalink layers.

Unit 3. OSI Networking

General Outcome:

3.0 The students should be able to describe the function of the network and transport layers and their implementation.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

3.1 Recognize the function and devices used with the network layer.

3.2 Describe the function of the transport layer.

3.3 Implement network and transport layers.

Unit 4. OSI Services

General Outcome:

4.0 The students should be able to describe the functions of the Session, presentation, and application layers of the OSI model and their implementation.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Describe the function of Session layer.
- 4.2 Describe the function of Presentation layer.
- 4.3 Describe the function of Application layer.
- 4.4 Implement Session, Presentation, and Application layer.

Unit 5. Troubleshooting Fundamentals

General Outcome:

5.0 The students should be able to implement preventive measures on network and develop systems for troubleshooting problems when they occur.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 Recognize potential problems with computers and network and take preventive measures.
- 5.2 Recognize computer and network problems and develop plan to solve problem and document.
- 5.3 Use a network analyser to locate and isolate hardware faults.
- 5.4 Use a protocol analyser to measure and test signal quality and efficiency.
- 5.5 Use various electronic test equipment to diagnose and repair faults in network cards and cabling.
- 5.6 Document problems and solutions.

Unit 6. Troubleshooting Tools

General Outcome:

6.0 The students should be able to use software tools to help in troubleshooting a network.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

6.1 Use NSE Pro.

6.2 Use Netwire.

6.3 Use Microhouse Tech Library.

Unit 7. Troubleshooting Network Topology Components

General Outcome:

7.0 The students should be able to discuss server/workstation architecture and should be able to troubleshoot topology components.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

7.1 Demonstrate the ability to troubleshoot an Ethernet network.

7.2 Demonstrate the ability to troubleshoot a Token Ring network.

7.3 Demonstrate the ability to troubleshoot an ARCNet network.

7.4 Demonstrate the ability to troubleshoot an FDDI network.

Unit 8. Troubleshooting Network Storage Devices

General Outcome:

8.0 The students should be able to troubleshoot hard disks and other network storage devices, and explain disk mirroring and duplexing.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 8.1 Explain hard disk basics.
- 8.2 Setup hard drives.
- 8.3 Describe and implement disk mirroring and duplexing.
- 8.4 Troubleshoot other network storage devices.

Unit 9. Troubleshooting Network Workstations

General Outcome:

9.0 The students should be able to identify and troubleshoot IPX/Netx, ODI, NetWare DOS requester, conflict resolution at the DOS workstation, and Unique Workstation Strategies.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 9.1 Troubleshoot IPX/NETx.
- 9.2 Troubleshoot ODI.
- 9.3 Troubleshoot the NetWare DOS Requester.
- 9.4 Identify, diagnose and resolve conflicts at the DOS workstation.
- 9.5 Develop unique workstation troubleshooting strategies.

Unit 10. Troubleshooting Network Printing

General Outcome:

10.0 The students should be able to troubleshoot network printers, NetWare print queues, print servers, and auxiliary printing components.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 10.1 Explain the complexities of NetWare printing.
- 10.2 Troubleshoot network printers.
- 10.3 Troubleshoot NetWare print queues.
- 10.4 Troubleshoot print servers.
- 10.5 Troubleshoot auxiliary printing components.

Unit 11. Network Optimization

General Outcome:

11.0 The students should be able to monitor, analyze, and optimize networks.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

11.1 Monitor and optimize network performance.

11.2 Analyze protocol.

11.3 Develop additional optimization strategies.