

LAST REVIEW: 2009 - 2010
(i.e. 2003-2004)

NEXT REVIEW: 2014 - 2015
(i.e. 2008-2009)

STATUS: A
(A, I, D)

COURSE TITLE: Advanced Networking

COMMON COURSE NUMBER: CET2742C

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN

(per 16 week term)

CLOCK HOURS:
(Voc. Course ONLY)

Lecture: 32 Lab: 32

Clinic: Other:

PREREQUISITE(S): CET2486C

COREQUISITE(S): None

PRE/COREQUISITE(S): None

COURSE DESCRIPTION *(750 characters, maximum):*

This course is for support professionals who are new to networking services and will be responsible for installing, configuring, managing, and supporting a network infrastructure that uses various networking services. It also provides students with the prerequisite knowledge and skills required for Implementing and Administering Directory Services such as Microsoft Active Directory

UNIT TITLES

1. Networking Overview
2. Configuring Network Protocols
3. TCP/IP Architecture
4. Dynamic Host Configuration Protocol
5. Managing and monitoring DHCP
6. Managing Server Environments
7. Managing and maintaining Domain Name System
8. Managing Network Files and System Security
9. Managing Server Security
10. Supporting Network Clients
11. Integrating a Multi-Platform Network Environment
12. Installing and Configuring Basic TCP/IP Services
13. DHCP configuration

EVALUATION:

Please provide a brief description (250 characters maximum) that details how students will be evaluated on the course outcomes.

Students will be assessed through a variety of means. Evaluation may include, but is not limited to, the following: exams, quizzes, presentations, portfolios, discussions, class participation, attendance, projects, networking diagnosis, co-ops, practical, internships, externships, and research reports.

Common Course Number: CET 2742C

UNITS

Unit 1 Networking Overview

General Outcome:

- 1.0 Students will have a general description of various server platforms, network types, protocols and architecture including the OSI model as well as knowledge of individual networking services and their purpose.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 1.1 Describe various computing networks**
- 1.2 Describe network types and protocols**
- 1.3 Describe network architecture i.e OSI model**
- 1.4 Describe common network services**

Common Course Number: CET 2742C

Unit 2 Configuring Network Protocols

General Outcome:

- 2.0 The student should be able to describe routed and routing protocols as well as describe and implement TCP/IP subnetting, supernetting, CIDR and VLSM.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 2.1 Configure TCP/IP parameters**
- 2.2 Create and manipulate sub-nets and super-nets**
- 2.3 Configure network for the protocols such as NWLink, IPX/SPX, etc.**

Common Course Number: CET 2742C

Unit 3 TCP/IP Architecture

General Outcome:

- 3.0 The student should be able to install, configure and use protocols at various OSI layers.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 3.1 Describe and/or implement the protocols and methods of the OSI Application layer**
- 3.2 Describe and/or implement the protocols and methods of the OSI Transport layer**
- 3.3 Describe and/or implement the protocols and methods of the OSI Network layer**
- 3.4 Describe and/or implement the protocols and methods of the OSI Data-link layer**

Common Course Number: CET 2742C

Unit 4 Dynamic Host Configuration Protocol

General Outcome:

- 4.0 The students should be able to deploy DHCP in a domain and non-domain environment**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 4.1 Install and authorize DHCP service.**
- 4.2 Create and configure DHCP scopes and reservations.**
- 4.3 Create and configure DHCP scope options.**
- 4.4 Create and configure DHCP relay agent.**

Common Course Number: CET 2742C

Unit 5 Managing and monitoring DHCP

General Outcome:

5.0 The student should be able to maintain and optimize the DHCP service

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 5.1 Reconcile and repair the DHCP Database.**
- 5.2 Perform auditing and of the DHCP service.**
- 5.3 Perform conflict detection and resolution.**
- 5.4 Configure DHCP bindings and troubleshoot service issues.**

Common Course Number: CET 2742C

Unit 6 Managing Server Environments

General Outcome:

- 6.0** The students should be able to define, distinguish and explain the similarities and differences between varying name resolution methods such as NetBIOS vs. host name resolution.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 6.1** Explain hosts & lmhosts files.
- 6.2** Demonstrate understanding of a functional DNS in its various implementations.
- 6.3** Demonstrate understanding of a functional WINS in its various implementation.
- 6.4** Troubleshoot name resolution problems.

Common Course Number: CET 2742C

Unit 7 Managing and maintaining Domain Name System

General Outcome:

7.0 The students should be able to manage and maintain DNS service

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 7.1 Install DNS and create forward and reverse lookup zones in master-slave, ADIZ, stub or caching-only server mode.**
- 7.2 Implement and configure the relationship between Directory Services, DHCP and DNS.**
- 7.3 Manage DNS zones, and zone transfers, bindings, forwarding, logging and zone security.**
- 7.4 Implement fault tolerance and integrate DNS & WINS.**
- 7.5 Perform backup and restoration.**

Common Course Number: CET 2742C

Unit 8 Managing Network Files and System Security

General Outcome:

8.0 The students should be able to set up and manage files and file system security

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 8.1 Manage file objects in Windows Server.**
- 8.2 Use share names on a Windows Server network.**
- 8.3 Implement file systems security using file permissions.**
- 8.4 Enhance file systems security through auditing**

Common Course Number: CET 2742C

Unit 9 Managing Server Security

General Outcome:

9.0 The students should be able to manage and update service registry

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 9.1 Describe the Windows Server registry.**
- 9.2 Describe practical uses of the registry.**
- 9.3 Perform registry operations.**
- 9.4 Describe the Windows Server registry and boot sequence**

Common Course Number: CET 2742C

Unit 10 Supporting Network Clients

General Outcome:

10.0 The students should be able to install and manage client software

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 10.1 Explain the architecture of network clients.**
- 10.2 Use the network client administrator tools.**
- 10.3 Install the network client software**

Common Course Number: CET 2742C

Unit 11: Integrating a Multi-Platform Network Environment

General Outcome:

11.0 The students should be able to integrate Windows Server servers with Unix/Linux, and other commonly used network operating systems.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 11.1 Connect to mapped network volumes or directory.**
- 11.2 Use print resources.**
- 11.3 Run remote tools from Windows Server.**
- 11.4 Configure TCP/IP related services and tools.**
- 11.5 Use migrating tools with Windows servers.**
- 11.6 Integrate various Unix/Linux servers and services.**
- 11.7 Integrate other network environments.**

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Unit 12 Installing and Configuring B TCP\IP Services

General Outcome:

12.0 The students should be able to implement TCP/IP for a Windows Server

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 12.1 Install and configure TCP/IP services.**
- 12.2 Install SNMP support for Windows Server.**
- 12.3 Configure Windows Server and IP router.**
- 12.4 Install and configure FTP server services.**
- 12.5 Use TCP/IP command line tools.**