

**MIAMI UNIVERSITY
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
DEPARTMENT OF ENGINEERING TECHNOLOGY**

ENT 294	Local Area Networks	3
Course Number	Title	Credit Hours

Instructor : Nizar Tayem

DESCRIPTION :

This course provides an introduction to Networking fundamentals, OSI model, LAN and WAN Networking standards, TCP/IP, Routing and other protocols.

PREREQUISITES: None

TEXT MATERIAL: Lab Manual, Network + Fundamentals and Certification Stand Alone Text and Software Certification Kit

REFERENCE MATERIAL:

The World Wide Web

COURSE OBJECTIVES:

The student will develop an understanding of common LAN systems, including

- Object oriented Network Directories
- The fundamental concepts and trade-offs between various transmission mediums including wireless technology
- Network topologies
- Various routing mechanisms between networks

OUTCOMES: This course addresses the following outcomes planned for the ECET program.

- Ability to load network OS software and clients in a LAN environment
- Knowledge of computer networking theory
- Knowledge of electrical/computer engineering safety
- Ability to setup and analyze local area networks
- Ability to effectively use electrical/electronics measurement tools
- Ability to apply troubleshooting techniques in the identification and correction of faults in a safe and proficient manner in local area networks
- Ability to produce written documents
- Effective teamwork skills

MEETING PLACE /TIME & CLASS THRUPUT:

Class meets one day per week for 3 Hours and 40 minutes.

2 Chapters lecture per night and lab exercises as needed for OJT.

TOPICAL OUTLINE AND SCHEDULE:

Week 1 Introduction to Networking Fundamentals
Week 2 OSI model
Week 3 LAN topologies and transmission mediums
Week 4 Ethernet Basics
Week 5 Star Topology, 5-4-3 rule
Week 6 Token Ring, FDDI, ATM, and NIC
Week 7 Network hardware
Week 8 Midterm exam
Week 9 LAN Protocols
Week 10 TCP/IP, NetBIOS, Sockets
Week 11,12 NOS, DNS, DHCP, WINS
Week 13 Sharing, Permissions
Week 14 Routers
Week 15 LAN, WAN connections.
Week 16 Review

Laboratory projects will be assigned to reinforce lecture topics. Topics to be included within these laboratory projects will include:

- Lab 1: Introduction to the lab and associated equipment
- Lab 2: Network Topology
- Lab 3: Network Wiring
- Lab 4: Installing a network OS
- Lab 5: Setting up a basic LAN
- Lab 6: Installing a Network Operating System
- Lab 7: The TCP/IP utilities
- Lab 8: Configuring a Domain Controller
- Lab 9: Sharing Accounts and Resources
- Lab 10: Working with Accounts
- Lab 11. An overview of Subnetting
- Lab 12. Backup and Recovery