NOS 130
WINDOWS SINGLE USER

COURSE DESCRIPTION:

Prerequisites: None
Corequisites: None

This course introduces operating system concepts for single-user systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating systems functions at the support level in a single-user environment. Course Hours Per Week: Class, 2. Lab, 2. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completion of this course, students will be able to:

a. Interact with operating system users to determine their needs
b. Install windows desktop operating systems
c. Setup user and group accounts
d. Install, administer, and troubleshoot network printers
e. Demonstrate the ability to install and utilize network utilities
f. Configure basic IP addressing, netmasks, subnetting, and IP security
g. Recommend network applications
h. Troubleshoot common booting problems
i. Troubleshoot network connectivity issues

OUTLINE OF INSTRUCTION:

I.   Windows Installation
    a)   Windows versions
    b)   Upgrading from previous versions
    c)   Installation sources
    d)   User profile and data migration
    e)   Active Directory and Group Policy integration

II. System Images
    a)   Image Preparation
       i.   Automated Installations
       ii.   Unattended Installation Facts
       iii.   Creating an Answer File
    b)   Image Capture with Windows PE and ImageX
    c)   Manual Image Deployment with ImageX
    d)   Image Servicing
       i. Mounting and Unmounting Images
       ii. Image Servicing with DISM
       iii. Changing Image Settings and Drivers
       iv. Applying Updates to Images
       v. Advanced DISM Options
    e)   Virtual Hard Disk (VHD) installation and creation

f) Domain Image Deployment
   i. Microsoft Deployment Toolkit (MDT)
   ii. Windows Deployment Services (WDS)
   iii. Deploying Images with WDS

III. Hardware and Applications
   a) Device Drivers: Managing, Staging, Configuration and Troubleshooting
   b) Partitions and Volumes: Creating, Resizing Volumes
   c) Disk Optimization: maintenance and quotas
   d) Removable Storage Policies and Group Policy Settings
   e) Application Compatibility
   f) User Account Control (UAC)
   g) Internet Options
   h) Internet Explorer (IE) 8: Security, InPrivate mode, Compatibility View
   i) Software Restriction Policies and AppLocker

IV. Networking
   a) IPv4 (Addresses, subnetting)
   b) IPv6 (Features, addresses, and implementation)
   c) IP Address Configuration for IPv4 and IPv6
   d) TCP/IP Troubleshooting Tools
   e) Configuring and Troubleshooting IPv4 and IPv6
   f) Configure IPv4 and IPv6 Settings
   g) Internet Connection Sharing (ICS)
   h) Wireless Networking (connecting, profiles)
   i) Windows Firewall and Advanced Security

V. Resource Access
   a) Authentication and Authorization
      i. Authentication Management
      ii. Using Credential Manager
      iii. Using Run As
      iv. Managing User Rights and Account Policies
      v. Manage Account Policies
   b) NTFS Permissions
   c) Resource Sharing (Shared Folders, Libraries, HomeGroups)
   d) Printer Sharing and Management
   e) Auditing
   f) Encryption and Encrypting File System (EFS)
   g) BranchCache

VI. Mobile Computing
   a) Network Access Protection (NAP)
   b) Virtual Private Network (VPN) creation and configuration
   c) DirectAccess
   d) BitLocker and BitLocker To Go
   e) Mobility Options: tools, offline files, and power plans

VII. Monitoring and Maintenance
   a) Troubleshooting tools, configuring Services and Startup Items

b) System Events: Event Viewer, Subscriptions
c) Performance Monitoring
   i. Performance Information and Tools Console
   ii. Viewing the Windows Experience Index
   iii. Windows Experience Index Facts
   iv. Update the Windows Experience Index
   v. Performance Monitor Console
   vi. Monitoring Performance
   vii. Windows Performance Toolkit (WPT)
d) Resource Monitoring
   i. Task Manager
   ii. Resource Monitor and Process Explorer
e) Reliability Monitor and Action Center
f) Windows Defender
g) Optimization
h) System Updates
   i. Windows Updates
   ii. Configure Windows Update
   iii. Update Deployment and Management
   iv. Configuring WSUS Clients
   v. Update Group Policy Settings
   vi. Remote Management: Remote Desktop and Remote Assistance

VIII. Backup and Recovery
a) System Backup
b) File Recovery: Backups and Shadow Copies
c) System Recovery and Restore Point

REQUIRED TEXTBOOK AND MATERIALS:

Text to be assigned by the instructor each semester

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 919-536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1209.