Eastern WV Community & Technical College
Master Course Record

Course Prefix and Number: IT 181

Course Title: Operating Systems

Recommended Transcript Title: Operating Systems

Date Approved/Revised

Credit Hours: 3
Contact hours per week (Based on 15 week term):
    Lecture: 3
    Lab:

Prerequisite: RDG 100 or minimum acceptable test scores for placement in college-level English and CIS 114 or permission of Division Chair or instructor.
Pre/Corequisite:

Grading Mode: Letter grade

Course Description: This course prepares students to perform routine maintenance and repairs on the operating systems. Emphasis will be on installation, maintenance, troubleshooting, upgrading, and repairing of PC operating systems. Includes coverage of networking and client/server issues. Prepares student for the MTA Certification.

Course Outcomes:
Students will:
1. Demonstrate a general understanding of Operating Systems, its configurations and maintenance, installing and upgrading client systems, applications management and maintenance, malware protection, device manager, and partitions.
2. Use the built-in software tool of the Windows operating system to troubleshoot and optimize system
3. Perform preventive maintenance for computer security
4. Troubleshoot printers and scanners
5. Describe the components of device management
6. Use commands for file and directory operations
7. Manage local storage devices
8. Manage DOS, Windows, Unix and Linux operating systems using commands prompts and GUI.
9. Explain the strategies for the management of Input/Output requests
10. Discuss hardware requirements and boot sequences
11. Discuss fixed partition, dynamic partitions and relocatable dynamic partitions
12. Explain the differences between sequential and direct access methods
13. Create executable system command files and run diagnostic programs
14. Apply generic procedures for system startup

Implementation Cycle: Fall

Role in College Curriculum: (Check all that apply)
  General Education Core (Specify category)
+ Technical Core: Information Technology AAS
  Restricted Elective: CAS in IT and CAS in Computer Applications Specialist
+ General Elective
  Workforce Education

Other (Please specify)
Course Fee: Yes
Instructor's Qualifications: Master's degree in Information Technology (IT) or master's degree with 18 graduate hours in IT.

Expanded Course Description:
1. Demonstrate a general understanding of the function of Operating Systems
    • Understand general purpose of an operating system.
    • Understand the main components of an operating system.
    • Understand security methods in operating systems.
    • Describe common features of current operating systems such as LINUX, Apple, etc.
    • Describe trends that drive changes in operating systems.
    • Understand structures and algorithms used in operating systems.
 	
2. Demonstrate an understanding of operating systems configurations
    • Understanding operating system configurations
        o Configure Control Panel options
        o Configuring administrative tools; configuring accessibility options
        o Configure desktop settings
        o Configuring gadgets, profiles, display settings, shortcuts, and Aero configurations and capabilities
        o Understand native applications and tools
        o Understanding Windows Internet Explorer, the snipping tool, Windows Media Player, Windows Media Center, and MSCONFIG
            ▪ OpSysGoal3.1 – Understand Native Applications
        o Understand mobility needs amplification
        o Understanding Sync Center, Windows Mobility Center, and Remote Desktop
            ▪ OpSysGoal3.3 – Mobility
        o Understand remote management and assistance needs amplification
        o Understanding MMC and Windows PowerShell
            ▪ OpSysGoal3.4 – Remote Management and Assistance
 	
3. Demonstrate ability to installing and upgrade client systems
        o Installing and upgrading client systems
            • Identify Windows Operating System editions
            • Identifying system requirements; using PC Upgrade Advisor
            • Identify upgrade paths
            • Identifying upgrade paths from Windows XP, Windows Vista, and other operating systems; identifying application compatibility
            • Understand installation types
            • Understanding removable media installations (DVD, ZTI, LTI, and USB), cloud and network installations, and product identification keys
            • Understand virtualized clients

- Understanding Windows XP Mode, Remote Desktop, and Remote Desktop Services
  - OpSysGoal2 – Install and Upgrade Client Systems
  - OpSysGoal2.3 – Demonstrate understanding of Update Management
  - OpSysGoal2.1 – Installing Operating System
  - OpSysGoal2.2 – Upgrading/Updating Operating Systems

4. **Demonstrate understanding of application management including ability to maintain applications including but not limited to user access and malware protection**
   - Managing applications
     - Understand application installations
       - Understanding local vs. network applications, Group Policy, and application removal
       - OpSysGoal3.5 – Explain difference between direct access and sequential access methods
       - OpSysGoal3.3 – Mobility
       - OpSysGoal3.4 – Remote Management and Assistance
       - OpSysGoal3.2 – Tools
       - OpSysGoal3.1 – Understand Native Applications
     - Understand user account control (UAC)
       - Understanding standard user vs. administrative user; understanding types of UAC prompts and levels
     - Remove malicious software
       - Understanding Windows Defender, Action Center, the Malicious Software Removal tool, Windows Registry, and Microsoft Forefront Endpoint Protection
     - Understand services
       - Understanding service start-up types, service accounts, and service dependencies
     - Understand application virtualization
       - Understanding Med-V and VDI
5. **Demonstrate understanding of file and folder management and ability implement file and folder management strategies.**
   - Managing files and folders (15–20%) not met
     - Understand file systems
       - Understanding FAT, FAT32, NTFS, and 32 bit vs. 64 bit
     - Understand file and print sharing
       - Understanding NTFS and share permissions, HomeGroup, print drivers, and effective permissions; creating public, basic, and advanced shares; mapping drives
     - Understand encryption
       - Understanding BitLocker, encrypting file systems (EFS), and compression

- o Understand libraries
  - § Understanding offline files, adding multiple local locations to a library, adding networked locations
- o OpSysGoal4.3 – Folders
- o OpSysGoal4.5 – Libraries
- o OpSysGoal4.1 – Managing Applications
- o OpSysGoal4.2 – Services

6. Demonstrate understanding of Device Manager and ability to manage devices.
- o Connect devices
  - § Connecting plug-and-play devices; connecting and disconnecting printers; installing third-party software for devices
- o Understand storage
  - § Understanding disk types (NTFS, FAT, etc.), security (encryption), storage device types (eSATA, USB, USB 2.0, IEEE 1394, iSCSI), storage drive types (basic, primary, extended, logical, dynamic disk, VHDs), and cloud storage (Windows Live OneDrive, OneNote to OneDrive, Live mesh)
- o Understand printing devices
  - § Understanding local printers, network printers, print queues, print-to-file, and Internet printing
- o Understand system devices
  - § Understanding video, audio, and infrared input devices; understanding Device Manager
- o OpSysGoal5.1 – Demonstrate understanding of File and Print sharing
- o OpSysGoal5.2 – Explain strategies for management of input/output requests

7. Demonstrate understanding operating system maintenance and ability to maintain operating systems. (15–20%)– needs some amplification
- • Understanding operating system maintenance (15–20%)– needs some amplification
  - o Understand backup and recovery methods
    - § Understanding local, online, and automated backup methods; understanding backup options; understanding System Restore, recovery boot options such as Last Known Good, and various Safe Mode options
    - § OpSysGoal6.5 – Recovery Method
    - § OpSysGoal6.5.2 – Apply generic procedures for system startup
    - § OpSysGoal6.5.1 – Illustrate/demonstrate or describe hardware requirements and boot sequences
    - § OpSysGoal6.4 – Understanding Backup

8. Demonstrate understanding of partitions and ability to create partitions
- • OpSysGoal8 – Describe/define fixed partition, dynamic partitions and relocatable dynamic partitions

9. **Demonstrate understanding of the choices available to the individuals with skills and education to enter a career in computer operating system maintenance.**

Prepared by: Vincenza Cumbo   April 6, 2015
Full Time Faculty for Information Technology and Computer Information Systems

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Signature, Title   Date

Approved by:

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Dean, Academic & Student Services   Date