Course Prefix and Number: IT 220

Course Title: Windows Server Administration Fundamentals

Recommended Transcript Title: Windows Server Administration Fundamentals
Date Approved/Revised:

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

Prerequisite: CIS 114 Corequisite: Pre/Corequisite:

Grading Mode: Letter grade

Course Description:

This course provides students with knowledge and skills necessary to install and configure a Windows Server. It will include installation and understanding of applications such as DNS, web server, Telnet Server, File Transfer Protocol (FTP) server, Secure Shell HTML (SSH) server, and Mail Server. Active Directory instruction includes the management of users, groups and configuration.

Course Outcomes:
- A. Demonstrate understanding of common tasks associated with different platforms.
- B. Describe the Windows Server family of products and define system requirements for each.
- C. Install Windows Server and describe the options and requirements for installing Windows Server.
- D. Install and configure Windows directory services.
- E. Manage access to resources.
- F. Configure security protocols.
- G. Understand Server Roles
- H. Understand Storage
- I. Understand Server Performance Management
- J. Understand Server Maintenance
- K. Demonstrate understanding of the skills and education required to succeed as a server administrator.
- L. Demonstrate understanding of careers in server administration and maintenance including training and education needed for success.

Implementation Cycle: Fall

Role in College Curriculum: (Check all that apply)
  General Education Core (Specify category)
  Technical Core:
Ξ **Restricted Elective:** Information Technology in AAS IT and CAS IT
  General Elective

| **Workforce Education** |
| **Other (Please specify)** |

| **Course Fee: Yes** |

| **Instructor's Qualifications:** Bachelor's degree in information technology with two years of related work experience in IT field or master's degree with 18 graduate hours in IT. |

Expanded Course Description:

This course is aligned to the Microsoft Technology Associate Exam: Windows Server Administration Fundamentals: MTA Exam 98-365.

A. **Demonstrate understanding of careers in server administration and maintenance and education required.**

B. **Demonstrate understanding of common tasks associated with different platforms: Included by not limited to:**
- Administration of operating systems, including testing, installation, upgrading, and upkeep of systems and software.
- Adjustment of software to peripheral equipment and drivers.
- Definition of users and user authorization.
- Information security.
- Installation and development of backup environments of the central servers in all platforms and their on-going maintenance, including follow-up after execution.
- Restoring files from backup
- Handling software licensing and renewal of software contracts.
- Supporting communication software, Web servers, e-mail, statistics packages, word processors, etc.
- Advice and instruction for support personnel and end users.

C. **Describe the Windows Server family of products and define system requirements for each.**

D. **Install Windows Server and describe the options and requirements for installing Windows Server.**
- Understand device drivers
  - Installation; removal; disabling; update/upgrade; rollback; troubleshooting; Plug & Play; IRQ; interrupts; driver signing
- Understand services
  - What services are; which statuses a service can be in; startup types; recovery options; delayed startup; Run As settings for a service; stopping or pausing a service; service accounts; dependencies
- Understand server installation options
  - Choosing correct OS version; partitioning; F8 options, server core vs. full; interactive install; unattended install; automated install using WDS; upgrade vs. clean install; firmware updates including BIOS

E. **Install and configure Windows directory services.**
- Understand accounts and groups

- o Domain accounts; local accounts; user profiles; group types; group scopes; group nesting; AGDLP
- Understand organizational units and containers
- o Purpose of organizational units; purpose of containers; delegation; default
- Understand Active Directory infrastructure
- o Domain controllers; forests; operation masters roles; domain vs. workgroup; child domains; trusts; functional levels; namespace; sites; replication
- Understand group policy
- o Group policy processing; Group Policy Management Console; computer policies; user policies; local policies

F. **Manage access to resources.**

G. **Configure security protocols.**

H. **Understanding server roles**
- Identify application servers
- o Mail servers; database servers; collaboration servers; monitoring servers; threat management
- Understand Web services
- o IIS, WWW, and FTP; separate worker processes; adding components; sites; ports; SSL; certificates
- Understand remote access
- o Remote assistance; remote administration tools; Remote Desktop Services; licensing; RD Gateway; VPN; application virtualization; multiple ports
- Understand the file and print services
- o Local printers; network printers; printer pools; web printing; web management; driver deployment; file, folder, and share permissions vs. rights; auditing; print job management
- Understand server virtualization
- o Virtualization modes; VHDs; virtual memory; virtual networks; snapshots and saved states; physical to virtual; virtual to physical

I. **Understanding storage**
- Identify storage technologies
- o Advantages and disadvantages of different storage types; local (SATA, SCSI, IDE); NAS; SAN; fibre channel; iSCSI; NFS; FC HBA and FC switches; iSCSI hardware
- Understand RAID
- o RAID 0, RAID 1, RAID 5, RAID 10 and combinations; hardware and software RAID
- Understand disk types
  - o ATA; basic disk; dynamic disk; mount points; file systems; mounting a virtual hard disk; distributed file systems; optical disk

J. **Understanding server performance management**
- Identify major server hardware components
  - o Memory; disk; processor; network; 32 / 64 bits; removable drives; graphic cards; cooling; power usage; ports
- Understand performance monitoring

- o   Methodology; procedures; effect of network, CPU, memory and disk; creating a baseline; perfmon; resmon; Task Manager; performance counters
- Understand logs and alerts
  - o   Purpose of performance logs and alerts

K.   Understanding server maintenance
- Identify steps in the startup process
  - o   BIOS; bootsector; bootloader; MBR; boot.ini; bcdedit; POST; Safe Mode
- Understand business continuity
  - o   Backup and restore; disaster recovery; clustering; AD restore; folder redirection; data redundancy; uninterruptible power supply (UPS)
- Understand updates
  - o   Software; driver; operating systems; applications; Windows Update; Windows Server Update Service (WSUS)
- Understand troubleshooting methodology
  - o   Processes; procedures; best practices; systematic vs. specific approach; Event Viewer; Resource Monitor; Information Technology Infrastructure Library; central logging; event filtering; default logs

Prepared by: Vincenza Cumbo   April 6, 2015

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Signature, Title   Date

Approved by:

Dean, Academic & Student Services   Date