

**SAN DIEGO COMMUNITY COLLEGE DISTRICT
CITY COLLEGE
ASSOCIATE DEGREE COURSE OUTLINE**

SECTION I

SUBJECT AREA AND COURSE NUMBER: Information, Network, and Web Technologies 111

COURSE TITLE:

Windows Desktop Professional

Units:

3

Grade Only

CATALOG COURSE DESCRIPTION:

This course is an in-depth study of installation and configuration methodologies of a current Windows desktop operating system. Emphasis is placed on the various methods of local installation, configuration of core local services, and general management and maintenance of a Windows client operating system. Topics include building solid identities; protection of content (data loss protection); mobile device management and policy; virtualization with Hyper-V; and application management using the company portal and Windows Store. This course is designed for students who plan to take the Microsoft Certified Solutions Associate (MCSA) exams 70-697 and 70-698.

REQUISITES:**Advisory:**

ENGL 047A with a grade of "C" or better, or equivalent or Assessment Skill Level W5/R5

or

ENGL 048 with a grade of "C" or better, or equivalent or Assessment Skill Level R5

&

ENGL 049 with a grade of "C" or better, or equivalent or Assessment Skill Level W5

FIELD TRIP REQUIREMENTS:

May be required

TRANSFER APPLICABILITY:

Associate Degree Credit & transfer to CSU

CID:**TOTAL LECTURE HOURS:**

24 - 27

TOTAL LAB HOURS:

72 - 81

STUDENT LEARNING OBJECTIVES:

Upon successful completion of the course the student will be able to:

1. Determine environmental, hardware, and software requirements for installing a Windows client operating system.
2. Identify and perform the various installation methods for installing a Windows client operating

system.

3. Install, configure, and manage devices and device drivers.
4. Perform post-installation configuration and customizations to enhance the user interface.
5. Implement deployment, activation, security, and management strategies for a Windows client operating system in an enterprise environment.
6. Configure network components of devices running a Windows client operating system; and use Windows client tools to investigate and resolve network-related problems.
7. Explain, configure, and manage storage hardware and file systems available in the Windows client operating system.
8. Discuss, configure, and troubleshoot multiple methods of data sharing and access permissions on a Windows client operating system.
9. Install, configure, and maintain applications on devices running Windows client operating system.
10. Identify appropriate remote management tools and how to use them to manage devices and computers.
11. Distinguish the different types of Windows updates; and configure Windows updates installation and roll back options.
12. Configure Windows built-in, self-tuning mechanisms to monitor devices and assess issues through logs and real-time data collection.
13. Configure and demonstrate the use of system and data recovery options for the Windows client operating system.
14. Identify and demonstrate authentication methods, account and credential management, and security of devices running the Windows client operating system.
15. Demonstrate the ability to configure and use Windows advanced management tools to efficiently manage user devices.
16. Describe how identity management works to provide Windows users with a secure and consistent environment.
17. Identify the need and plan Windows desktop and mobile device deployment.
18. Plan and implement a Microsoft Intune device management solution.
19. Demonstrate the ability to configure virtual private network connections in the Windows client operating system; and understand the various encapsulation, authentication, and data encryption options available.
20. Demonstrate the ability to support the operation of applications through the deployment and management of Microsoft Azure RemoteApp.
21. Manage recovery of the Windows client operating system by configuring and using a system restore, refresh or recycle, driver roll back, and system restore point.

SECTION II

1. COURSE OUTLINE AND SCOPE:

A. Outline Of Topics:

The following topics are included in the framework of the course but are not intended as limits on content. The order of presentation and relative emphasis will vary with each instructor.

- I. Preparing for Windows 10 client installation
 - A. Determining hardware requirements and compatibility
 1. Minimum and recommended hardware
 2. Vendor compatibility
 3. Existing application infrastructure
 - B. Choosing between an upgrade and a clean installation
 1. Selecting a suitable upgrade or migration strategy
 2. Performing an in-place upgrade
 3. Performing a migration
 - C. Determining appropriate editions by device type
 1. Selecting an appropriate edition
 2. Implementing 32-bit or 64-bit versions
 - D. Determining requirements for particular features, including but not limited to Hyper-V, Cortana, Miracast, Virtual Smart Cards, and Secure Boot
 1. General features

- 2. Security features
- E. Determining and creating appropriate installation media
 - 1. Installation strategy
 - 2. Media support
- II. Installing Windows 10
 - A. Clean installations
 - B. Upgrading by Windows Update
 - 1. Supported editions
 - 2. Performing the upgrade
 - 3. Rolling back to a previous version
 - 4. Block upgrading
 - C. Upgrading by installation media
 - D. Configuring native boot scenarios
 - 1. Viewing configuration information
 - 2. Multibooting
 - E. Migrating from previous versions
 - 1. User Experience Virtualization (UE-V)
 - 2. User State Migration (USM) tool
 - F. Installing onto a virtual hard disk (VHD)
 - 1. Creating and configuring a native boot virtual hard disk
 - 2. Using Disk Management to attach a virtual hard disk
 - 3. Installing inside a virtual hard disk
 - G. Booting from a virtual hard disk
 - 1. Creating a Master Boot Record-partitioned (MBR) virtual hard disk
 - 2. Applying images to the virtual hard disk
 - 3. Configuring boot options
 - H. Installing on a bootable USB
 - 1. Media Creation Tool (MCT)
 - 2. Manually create a bootable USB
 - I. Installing additional Windows features
 - 1. Windows Features app
 - 2. Deployment Image Servicing and Management (DISM)
 - J. Configuring for additional regional and language support
- III. Configuring devices and device drivers
 - A. Installing and managing devices
 - B. Updating, disabling, and rolling back
 - 1. Updating
 - 2. Preventing updates over metered connections
 - 3. Disabling individual driver updates or Windows updates
 - 4. Turning on or off automatic device driver installation in device installation settings
 - 5. Performing a driver rollback
 - C. Resolving driver issues
 - 1. Disabling updates
 - 2. Using driver verification tools
 - D. Configuring driver settings
 - 1. Viewing device settings
 - 2. Supporting older hardware
 - E. Driver signing
 - F. Managing driver packages
 - 1. Driver store
 - 2. PnPUtl.exe
 - G. Downloading and importing driver packages
 - H. Using Deployment Imaging Service Management tool to add and manage packages
- IV. Post-installation configuration
 - A. User interface
 - B. Action Center and Taskbar
 - C. Accessibility options
 - D. Cortana
 - E. Microsoft Edge
 - F. Microsoft Internet Explorer

- G. Hyper-V
 - 1. Requirements
 - 2. Installing
 - 3. Creating and managing virtual machines
- H. Power settings
 - 1. Basic power options
 - 2. Power plans
- V. Implementing Windows in an enterprise environment
 - A. Provisioning with Windows Imaging and Configuration Designer (ICD) tool
 - B. Activating
 - 1. Selecting an activation method
 - 2. Implementing volume activation
 - C. User Account Control (UAC)
 - D. Active Directory, including Group Policy
 - 1. Configuring Active Directory
 - 2. Using Active Directory Administrative Center (ADAC)
 - 3. Configuring Group Policy
- VI. Configuring networking
 - A. IPv4 and IPv6
 - 1. Explaining subnetting
 - 2. Differentiating between public and private addressing schemes
 - 3. Configuring IPv6 addressing
 - B. Name resolution
 - 1. Domain Naming System (DNS)
 - 2. Advanced Domain Naming System settings
 - C. Connecting
 - 1. HomeGroup
 - 2. Virtual private network
 - 3. DirectAccess
 - D. Network locations
 - 1. Profiles
 - 2. Network connection
 - E. Windows Firewall, including advanced security and network discovery
 - 1. Internet protocol security
 - 2. Network discovery
 - F. Wi-Fi settings and Wi-Fi Direct
 - 1. Wireless networking standards
 - 2. Security
 - G. Troubleshooting network issues
 - 1. Tools
 - 2. Name resolution
- VII. Configuring storage
 - A. Disks, volumes and file systems
 - B. Virtual hard disks
 - 1. Working with virtual hard disks
 - 2. Hyper-V Manager
 - 3. Disk Manager
 - 4. Windows PowerShell
 - 5. Link to differencing disks
 - C. Removable devices
 - 1. Formatting
 - 2. Securing
 - 3. Restricting access
 - D. Storage spaces
 - 1. Using storage spaces and storage pools
 - 2. Managing with Windows PowerShell
 - E. Troubleshoot storage issues and removable devices
 - 1. Initializing a basic disk
 - 2. Importing foreign disks
 - 3. Recovering from hard drive failure

- 4. Replacing failed disks
- VIII. Configuring data access and usage
 - A. File and printer sharing
 - 1. Server Message Block (SMB) and network discovery
 - 2. Sharing wizard
 - B. HomeGroup connections
 - 1. Creating
 - 2. Joining
 - C. Folder shares
 - 1. Creating a share
 - 2. Securing permissions
 - D. Public folders
 - E. OneDrive
 - 1. Desktop app
 - 2. Web portal
 - 3. Fetching files on your PC
 - F. File system permissions
 - 1. Using File Explorer to manage files and folders
 - 2. Understanding New Technology File System (NTFS) inheritance
 - G. OneDrive usage
 - 1. Sharing files
 - 2. Recovering files
 - 3. Blocking access
 - H. Troubleshooting data access and usage
 - 1. Share and New Technology File System permissions
 - 2. Dynamic access control
 - 3. Data recovery
 - 4. Recovering BitLocker encrypted drives
- IX. Implement applications
 - A. Desktop applications
 - 1. Installing
 - 2. Uninstalling or changing
 - B. Startup options
 - 1. Fast Startup
 - 2. Behavior
 - C. Configuring Windows features
 - D. Windows Store application
 - 1. Managing
 - 2. Configuring
 - 3. Sideloaded
 - 4. Distributing by using Windows Store for Business
 - E. Creating and deploying provisioning packages
- X. Configuring remote management
 - A. Choosing the appropriate remote management tools
 - 1. Determining the available remote management tools
 - 2. Selecting the appropriate remote management tool for a given situation
 - B. Remote management settings
 - 1. Windows Firewall
 - 2. System properties
 - C. Remote Assistance (RA)
 - 1. Requesting help
 - 2. Offering help
 - 3. Using group policy objects
 - 4. Managing computers remotely
 - D. Remote Desktop
 - 1. Creating and editing connections
 - 2. Using group policy objects
 - E. Windows PowerShell remoting
 - F. Modifying settings, using Microsoft Management Console (MMC) or Windows PowerShell
- XI. Configuring updates

- A. Windows Update
 - 1. Settings
 - 2. Using group policy objects
 - 3. Troubleshooting
- B. Implementing Insider Preview
- C. Current Branch (CB) and Current Branch for Business (CBB)
 - 1. Updating mobile devices
 - 2. Implementing continuous servicing
- D. Long Term Servicing Branch (LTSB) scenarios
- E. Managing update history
 - 1. Viewing
 - 2. Hiding or showing Windows Update
- F. Rolling back updates
 - 1. Control Panel
 - 2. Settings
 - 3. Command prompt
 - 4. Reverting to a previous build
- G. Updating Windows Store applications
- XII. Monitoring Windows
 - A. Configuring and analyzing Event Viewer logs
 - 1. Understanding event logs
 - 2. Creating a custom view
 - B. Event subscriptions
 - 1. Viewing
 - 2. Creating
 - 3. Accessing event logs remotely
 - C. Task Manager
 - 1. Accessing
 - 2. Using tabs
 - D. Resource Monitor
 - E. Performance Monitor and Data Collector Set
 - F. System resources
 - 1. Understanding baseline performance vs. real-time monitoring
 - 2. Creating a performance baseline
 - G. Monitoring and managing printers
 - 1. Print Management
 - 2. Windows PowerShell
 - 3. Default printer behavior
 - H. Configuring indexing options
 - I. Managing client security by using Windows Defender
 - 1. Understanding malware
 - 2. Monitoring for malware
 - J. Evaluating system stability using Reliability Monitor
 - K. Troubleshooting performance issues
- XIII. Configuring system and data recovery
 - A. Recovery drive
 - B. System restore
 - C. Performing a refresh or recycle
 - D. Performing recovery operations using Windows Recovery
 - E. Restore points
 - 1. Changing restore settings
 - 2. Managing disk space
 - 3. Creating or deleting
 - F. Windows Backup and Restore
 - G. Performing a backup and restore with WBAAdmin
 - H. File History
 - 1. Configuring
 - 2. Recovering
 - 3. Enterprise considerations
 - I. Restoring previous versions of files and folders

- J. OneDrive
- XIV. Configuring authorization and authentication
 - A. User accounts
 - 1. Local accounts
 - 2. Microsoft accounts
 - 3. Control behavior
 - B. Microsoft Passport and Windows Hello
 - C. Managing credential security
 - 1. Credential Manager
 - 2. Credential Guard
 - D. Managing device security
 - 1. Device Guard
 - 2. Device Health Attestation
 - E. HomeGroup, workgroup, and domain settings
- XV. Configuring advanced management tools
 - A. Services
 - 1. Manage services
 - 2. Using the System Configuration tool
 - B. Device Manager
 - C. Microsoft Management Console
 - D. Task Scheduler
 - E. Automation of management tasks using Windows PowerShell
 - 1. Simple scripts
 - 2. Running scripts
 - 3. Integrated Scripting Environment (ISE)
- XVI. Managing identity
 - A. Supporting Windows Store and cloud applications
 - 1. Integrating account and personalization settings
 - 2. Installing and managing software with Microsoft Office 365 and Windows Store applications
 - 3. Sideloaded applications into online and offline images
 - 4. Sideloaded applications by using Microsoft Intune
 - 5. Deep-linking apps by using Microsoft Intune
 - B. Supporting authentication and authorization
 - 1. User authentication, including multi-factor authentication, certificates, virtual smart cards, picture passwords, and biometrics
 - 2. Workgroup, Homegroup, and domain membership, including Secure Channel, account policies, credential caching, and Credential Manager
 - 3. Knowing when to use a local account versus a Microsoft account
 - 4. Workplace Join
 - 5. Windows Hello
- XVII. Planning desktop and device deployment
 - A. Migrating and configuring user data
 - 1. User profiles
 - 2. Folder location
 - B. Configuring Hyper-V
 - 1. Virtual machines
 - 2. Checkpoints
 - 3. Virtual switches
 - 4. Virtual disks
 - 5. Moving virtual machine storage
 - C. Configuring mobility options
 - 1. Offline file policies
 - 2. Sync options
 - 3. Power policies
 - 4. Windows To Go
 - 5. Wi-Fi Direct
 - D. Configuring security for mobile devices
 - 1. BitLocker
 - 2. Startup key storage

- XVIII. Planning and implementing a Microsoft Intune device management solution
 - A. Supporting mobile devices
 - 1. Access and data synchronization
 - 2. Broadband connectivity
 - 3. Mobile Device Management (MDM)
 - B. Deploying software updates by using Microsoft Intune
 - 1. Using reports and In-Console Monitoring to identify required updates
 - 2. Approving or declining updates
 - 3. Configuring automatic approval settings
 - 4. Configuring deadlines for update installations
 - 5. Deploying third-party updates
 - C. Managing devices with Microsoft Intune
 - 1. Provisioning user accounts
 - 2. Enrolling devices
 - 3. Viewing and managing all managed devices
 - 4. Configuring Microsoft Intune subscriptions
 - 5. Configuring the Microsoft Intune connector site system role
 - 6. User and computer groups
 - 7. Configure monitoring and alerts
 - 8. Policies
 - 9. Remote computers
- XIX. Managing Remote Access
 - A. Configuring remote connections
 - 1. Remote authentication
 - 2. Virtual private network connections and authentication
 - 3. Remote desktop settings
 - 4. Enabling virtual private network reconnect
 - 5. Broadband tethering
 - B. Configuring mobility options
 - 1. Offline file policies
 - 2. Power policies
 - 3. Windows To Go
 - 4. Sync options
 - 5. Wi-Fi Direct
- XX. Managing applications
 - A. Azure RemoteApp
 - 1. Configuring RemoteApp and Desktop Connections settings
 - 2. Group policy objects for signed packages
 - 3. Subscribing to the Azure RemoteApp and Desktop Connections feeds
 - 4. Supporting iOS and Android
 - 5. Remote desktop web access for Azure RemoteApp distribution
 - B. Supporting desktop apps
 - 1. Compatibility using Application Compatibility Toolkit
 - 2. Application co-existence
 - 3. Installing and configuring User Experience Virtualization (UEV)
 - 4. Deploying desktop apps by using Microsoft Intune
- XXI. Managing updates and recovery
 - A. Configuring system recovery
 - 1. Recovery drive
 - 2. System restore
 - 3. Refresh or recycle
 - 4. Driver rollback
 - 5. Restore points
 - B. Configuring file recovery
 - 1. File History
 - 2. Restoring previous versions of files and folders
 - 3. Recovering files from OneDrive
 - C. Configuring and manage updates
 - 1. Update settings
 - 2. Windows Update policies

3. Managing update history
4. Rolling back updates
5. Updating Windows Store applications

B. Reading Assignments:

Reading assignments are required and may include but, are not limited to, the following:

- I. Microsoft Official Academic Course (MOAC) textbook
- II. Microsoft Windows reference materials, manuals and/or resources
- III. Articles from online sources, such as: Microsoft Certified Professional Magazine at mcpmag.com; Windows ITPRo at windowsitpro.com; PC Magazine at www.pcmag.com; Network World at www.networkworld.com

C. Writing Assignments:

Writing assignments are required and may include, but are not limited to, the following:

- I. Brief summaries of Windows desktop configuration processes
- II. Maintenance of a technical journal
- III. Proposal for the implementation and configuration of available Windows desktop applications and features for a medium-sized organization

D. Appropriate Outside Assignments:

Outside assignments may include, but are not limited to, the following:

- I. Practice exercises involving the installation, configuration, and management of Windows desktop applications and features
- II. Online searches for recent white papers related to Windows enterprise solutions

E. Appropriate Assignments that Demonstrate Critical Thinking:

Critical thinking assignments are required and may include, but are not limited to, the following:

- I. Create and implement an enterprise strategy plan to implement virtual desktop based solutions available for the Windows operating system
- II. Formulate and compose a scalable deployment plan that considers installation, storage and computing with the Windows operating systems

2. METHODS OF EVALUATION:

A student's grade will be based on multiple measures of performance unless the course requires no grade. Multiple measures may include, but are not limited to, the following:

- I. Exams and quizzes modeled after official Microsoft exams related to the Windows desktop operating system installation and storage, networking, and devices
- II. Individual and team projects that demonstrate mastery of single and multiple competencies related to Windows desktop and device installation, configuration and maintenance
- III. Practice Lab Simulations to prepare for industry examination/certification

3. METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to, the following:

- * Lecture-Lab Combination
- * Distance Education
- * Computer Assisted Instruction
- * Audio-Visual
- * Collaborative Learning

4. REQUIRED TEXTS AND SUPPLIES:

Textbooks may include, but are not limited to:

TEXTBOOKS:

1. Panke, William. MCSA: Windows 10 Complete Study Guide: Exams 70-698 and Exam 70-697, Sybex, 2017, ISBN: 9781119384960
2. Regan, Patrick. 70-698 Installing and Configuring Windows 10, Wiley, 2017, ISBN: 9781119331315
3. Regan, Patrick. 70-697 Configuring Windows Devices, Wiley, 2017, ISBN: 9781119304982

MANUALS:

PERIODICALS:

SOFTWARE:

SUPPLIES:

1. Removable storage media, such as an external hard-drive or USB memory sticks.

ORIGINATOR: David Kennemer

CO-CONTRIBUTOR(S)

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