Configuring Advanced Windows Server 2012 Services (ITNW 1372)

Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Prerequisite/Co-requisite: None

Course Description

This course will validate the advanced configuring tasks necessary to deploy, manage and maintain a Windows Server 2012 infrastructure, such as fault tolerance, certificate services, and identity federation. This course along with the other two courses will collectively validate the skills and knowledge necessary for implementing, managing, maintaining and provisioning services and infrastructure in a Windows Server 2012 environment.

Required Textbook and Materials

1. *70-412 Configuring Advanced Windows Server 2012 Services R2* by Microsoft Official Academic Course, Wiley, 2014.

    ISBN number for print book is 978-1-118-96641-9

2. Computer Networking and Troubleshooting Technology students are required to have one portable external Hard Drive with a capacity of 500GB or larger to be used for the duration of the time to complete their respective degree.

Course Objectives

Upon completion of this course, the student will be able to:
1. Configure and Manage High Availability.
2. Configure File and Storage Solutions.
3. Implement Business Continuity and Disaster Recovery.
4. Configure Network Services.
5. Configure Active Directory Infrastructure.
6. Configure Identity and Access Solutions.

Course Outline

1. Configuring Network Load Balancing
    a. Understanding Fault Tolerance
    b. Configuring Network Load Balancing
2. Configuring Failover Clustering
    a. Understanding Failover Clustering
3. Managing Failover Clustering Roles
    a. Managing Failover Clustering Roles
4. Managing Virtual Machine Movement
    a. Understanding Virtual Machine Movement
    b. Understanding Live Migration

    c. Performing Quick migration
    d. Performing Storage migration
    e. Configuring Drain on Shutdown
    f. Importing, Exporting, and Copying Virtual Machines
    g. Migrating from Other Platforms – Understanding P2V and V2V
    h. Converting a Virtual Machine to Virtual Machine (V2V) Using SCVMM

5. Configuring Advanced File Services
    a. Configuring NFS Data Store
    b. Configuring BrancCache
    c. Configuring File Classification Infrastructure
    d. Configuring File Access Auditing

6. Implementing Dynamic Access Control
    a. Using Dynamic Access Control

7. Configuring and Optimizing Storage
    a. Understanding Shared Storage
    b. Using iSCSI
    c. Configuring Tiered Storage
    d. Implementing Thin Provisioning and Trim
    e. Managing Server Free Space Using Features in Demand

8. Configuring and Managing Backups
    a. Configuring and Managing Backups

9. Recovering Servers
    a. Preparing for Windows Server 2015 R2 Restore

10. Configuring Site-Level Fault Tolerance
    a. Configuring Hyper-V Replica
    b. Configuring Multi-Site Clustering

11. Implementing an Advanced Dynamic Host Configuration Protocol (DHCP) Solution
    a. Implementing Advanced DHCP Solutions

12. Implementing an Advanced DNS Solution
    a. Configuring Security for DNS
    b. Configuring DNS Logging
    c. Configuring Delegated Administration
    d. Configuring Recursion
    e. Configuring Netmask Ordering
    f. Configuring a GlobalNames Zone

13. Deploying and Managin IPAM
    a. Configuring IPAM
    b. Creating and Managing IP Blocks and Ranges
    c. Monitoring Utilization of IP Address Space

14. Configuring a Domain and Forest

     a. Implementing Complex Active Directory Environments
     b. Upgrading Existing Domains and Forests
     c. Configuring Multiple UPN Suffixes
15. Configuring Trusts
     a. Configuring Trusts
     b. Creating External Trusts
     c. Creating Forest Trusts
     d. Creating Shortcut Trusts
     e. Creating Realm Trusts
     f. Validating Trusts
     g. Configuring Trust Authentication
     h. Configuring SID Filtering
     i. Configuring Name Suffix Routing
16. Configuring Sites
     a. Configuring Sites and Subnets
17. Managing Active Directory and SYSVOL Replication
     a. Managing Active Directory Replication
18. Implementing Active Directory Federation Services
     a. Understanding Active Directory Federation Services
     b. Implementing AD FS
19. Installing and Configuring Active Directory Certificate Services (AD CS)
     a. Understanding the Active Directory Certificate Services
20. Managing Certificates
     a. Managing Digital Certificates
21. Installing and Configuring Active Directory Rights Management Services
     a. Understanding Active Directory Rights Management

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Labs	25%
Study Guides	10%
Chapter Tests	35%
Final Exam	30%

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Course Requirements
1. Demonstrate proficiency through hands-on labs as assigned.
2. Completion of Study Guides as assigned.

Course Policies
1. No food, drinks, or use of tobacco products in class.
2. Electronic devices not being used for the class, such as phones and headphones, must be turned off while in class.
3. Do not bring children to class.
4. Certification: If a student passes the certification test that is associated with this class, you will receive an "A" on the final exam and credit for 25% of your labs. If you have missed a previous test, you must still take the final exam to substitute for that grade.
5. Attendance Policy: Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2 point deduction from your final grade.
6. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
7. Tools: Return all tools and/or software to their designated place.
8. A grade of 'C' or better must be earned in this course for credit toward degree requirement.
9. Additional course policies, as defined by the individual course instructor, will be outlined in the course addendum and provided by the instructor.

Disabilities Statement
The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Technical Requirements (for courses using Blackboard)
The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy

 A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

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Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the LIT Catalog and Student Handbook supersedes all other versions of the same document.

Certification Requirement

CNTT majors are required to earn certification in one of the following areas prior to graduation.

- A+ Certification
- Cisco Certified Entry Network Technician (CCENT)
- Cisco Certified Network Associate (CCNA)
- Microsoft Certified Solutions Associate (MCSA)

This course covers the material to prepare for Microsoft's Configuring Advanced Windows Server 2012 certification, exam number 70-412. This exam, along with 70-410 and 70-411, applies as credit toward the MCSA: Windows Server 2012. Students are responsible for scheduling and paying for the certification through the LIT Testing Center. More information about the certification can be found online at https://www.microsoft.com/en-us/learning/exam-70-412.aspx.

Course Schedule

Week of	Topic	Reference
Week 1	Syllabus and policies Course Introduction Introduction to Virtual Labs	
Week 2	Chapter 1: Configuring Network Load Balancing Chapter 2: Configuring Failover Clustering	pp. 1-15 pp. 16-45
Week 3	Chapter 3: Managing Failover Clustering Roles Chapter 4: Managing Virtual Machine Movement	pp. 46-60 pp. 61-84
Week 4	Chapter 5: Configuring Advanced File Services Lab Chapters 1-5	pp. 85-109
Week 5	Test Chapters 1-5 Chapter 6: Implementing Dynamic Access Control	pp. 110-129

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Week of	Topic	Reference
Week 6	Chapter 7: Configuring and optimizing Storage	pp. 130-149
	Chapter 8: Configuring and Managing Backups	pp. 150-176
Week 7	Chapter 9: Recovering Servers	pp. 177-203
	Chapter 10: Configuring Site-Level Fault Tolerance	pp. 204-217
Week 8	Lab Chapters 6-10	
	Test Chapters 6-10	
Week 9	Chapter 11: Implementing an Advanced DHCP Solution	pp. 218-241
	Chapter 12: Implementing an Advanced DNS Solution	pp. 242-256
Week 10	Chapter 13: Deploying and Managing IPAM	pp. 257-274
	Chapter 14: Configuring a Domain and Forest	pp. 275-291
Week 11	Chapter 15: Configuring Trusts	pp. 292-317
	Labs Chapters 11-15	
Week 12	Test Chapters 11-15	
	Chapter 16: Configuring Sites	pp. 318-338
Week 13	Chapter 17: Managing Active Directory and SYSVOL Replication	pp. 339-358
	Chapter 18: implementing Active Directory Federation Services	pp. 359-384
Week 14	Chapter 19: Installing and Configuring Active Directory Certificate Services	pp.385-407
	Chapter 20: Managing Certificates	pp. 408-433
Week 15	Lab Chapter 16-20	
	Test Chapters 16-20	
Week 16	Chapter 21: Installing and Configuring Active Directory Rights Management Services	pp. 434-455
	Lab and Final Exam Prep	

Contact Information:

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