

# Network Troubleshooting and Support (ITNW 2335)



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

**Prerequisite/Co-requisite:** None

## Course Description

Troubleshoot and support networks with emphasis on solving real world problems in a hands-on environment. Topics include troubleshooting and research techniques, available resources, and network management hard/software.

## Required Textbook and Materials

1. *Exam 70-688 Supporting Windows 8.1* by Microsoft Official Academic Course, Wiley, 2014.
  - a. ISBN number for print book is 978-1-118-96820-8
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. Utilize research tools to assist in network support
2. Create or revise documentation of network physical layouts, software installations, licensing, and network operation logs
3. Demonstrate capability to identify and resolve network problems

## Course Outline

1. Supporting Operating System Installation
  - a. Use a Troubleshooting Methodology
  - b. Supporting Windows To Go
  - c. Managing Boot Settings
  - d. Configuring a native VHD Boot File
  - e. Managing Desktop Images
  - f. Customizing a Windows Installation by using Windows PE
2. Supporting Desktop Apps
  - a. Dealing with Desktop Application Problems
  - b. Managing Desktop Application Co-Existence
  - c. Managing Desktop Application Compatibility Using the Application Compatibility Toolkit (ACT)
  - d. Virtualizing the User Experience
  - e. Deploying Desktop Applications By Using Windows Intune
3. Supporting Windows Store and Cloud Apps

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- a. Introducing Public Cloud Services
- b. Working with Windows Store Applications
- c. Restricting Access to the Windows Store Using Group Policy
- d. Using Applocker to Manage Applications
- e. Using Microsoft Office 365
- f. Integrating Microsoft Accounts
4. Supporting Network Connectivity
  - a. Supporting Network Connectivity
  - b. Troubleshooting IP Network Problems
5. Supporting Remote Access
  - a. Providing Off-Network Use and Management
  - b. Exploring Virtual Private Networks
  - c. Exploring Remote Access using DirectAccess and Routing and Remote Access (RRAS)
  - d. Supporting Remote Desktop Service (RDS)
  - e. Using Remote Assistance
  - f. Performing Remote Administration
  - g. Exploring Metered Networks
6. Supporting Authentication and Authorization
  - a. Supporting Authentication and Authorization
7. Supporting Data Storage
  - a. Resolving Data Storage Issue
  - b. Managing Storage Pools and Storage Spaces
  - c. Optimizing Data Access Using BranchCache
  - d. Managing Distributed File System (DFS) Client Settings
  - e. Using Onedrive to Manage Files/Folders
8. Supporting Data Security
  - a. Managing Share Permissions and NTFS Permissions
  - b. Using Dynamic Access Control
  - c. Configuring the Encrypting File System (EFS)
  - d. Configuring Security for Removable Media
  - e. Managing BitLocker and BitLocker To Go
9. Supporting Operating System and Hardware
  - a. Resolving Hardware and Device Issues
  - b. Optimizing Performance by Using Windows Performance Toolkit (WPT)
  - c. Monitoring Performance
  - d. Monitoring and Managing Printers
  - e. Remediating Startup Issues Using DaRT 8.1
10. Supporting Mobile Devices
  - a. Supporting Mobile Access and Data Synchronization
  - b. Exploring Exchange Active Sync/Mobile Device Policies in Exchange Server

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- c. Supporting Broadband Connectivity
  - d. Supporting Mobile Device Management by using Windows Intune
  - e. Resolving Mobility Issues
11. Supporting Client Compliance
- a. Managing Endpoint Security
  - b. Managing Updates Using Windows Update
  - c. Managing Windows Server Update Services (WSUS) 4.0 Using Windows Server 2012 R2
  - d. Managing updates by Using Windows Update and Windows Intune
  - e. Managing Client Security Using Windows Defender
  - f. Managing Client Security Using SCCM 2012 Endpoint Protection Client
  - g. Resolving Endpoint Security Issues
  - h. Supporting Group Policy Applications
  - i. Managing internet Explorer 11 Security
12. Managing Clients by Using Windows Intune
- a. Introducing Windows Intune
  - b. Exploring Windows Intune Configuration Requirements
  - c. Managing User and Computer Groups
  - d. Configuring the Company Portal
  - e. Configuring Monitoring and Alerts
  - f. Managing Remote Computers
  - g. Managing Windows Intune Policies
  - h. Managing Asset Inventory In Windows Intune

### 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	30%
Study Guides	10%
Module Tests	30%
Final Exam	30%

### Course Requirements

1. Demonstrate proficiency through hands-on labs as assigned.
2. Complete Study Guides and work sheets 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](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.

## **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 Supporting Windows 8.1 certification, exam number 70-688. This exam, along with 70-687, applies as credit toward the MCSA: Windows 8. 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-70-688.aspx>.

### **Course Schedule**

Week of	Topic	Reference
Week 1	Course introduction and policies Chapter 1: Designing an Operating System Installation Strategy	pp. 1-36
Week 2	Chapter 2: Designing an Application Strategy for Desktop Applications	pp. 37-60
Week 3	Chapter 3: Designing an Application Strategy for Cloud Applications	pp. 61-87
Week 4	Chapter 4: Designing a Solution for User Settings Exam Chapters 1-4	pp. 81-102
Week 5	Chapter 5: Designing for Network Connectivity Chapter 6: Designing for Remote Access	pp. 113-143 pp. 144-182
Week 6	Chapter 7: Designing for Authentication and Authorization Chapter 8: Managing Data Storage	pp. 183-199 pp. 200-218

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Week of	Topic	Reference
Week 7	Chapter 9: Managing Data Security Exam Chapters 5-8	pp. 219-241
Week 8	Chapter 10: Managing Hardware and Printers	pp. 242-265
Week 9	Chapter 11: Managing Mobile Devices	pp. 266-288
Week 10	Chapter 12: Designing a Recovery Solution	pp. 289-313
Week 11	Chapter 13: Managing Endpoint Security Exam Chapters 9-12	pp. 314-350
Week 12	Chapter 14: Managing Clients by Using Windows Intune	pp. 351-388
Week 13	Chapter 15: Managing Public Cloud Services	pp. 389-408
Week 14	Chapter 16: Managing and Maintaining Clients by Using MDOP	pp. 409-439
Week 15	Review Chapters 13-16	
Week 16	Final Exam	

**Contact Information:**

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