

COURSE TITLE AND NUMBER: Designing a Microsoft Windows 2000 Networking Services Infrastructure, IT 210

North Central Michigan College

NCMC CURRICULUM/COURSE OUTLINE FOR YEARS 2002 +

DIVISION/AREA: Business and Technology DEPARTMENT: Information Technologies

AREA DEAN: Dr. Timothy Dykstra ORIGINATOR: Fred Harrington

TOTAL HOURS OF INSTRUCTION: LECTURE: 0 LAB: 2 TOTAL CONTACT HOURS: 2

COURSE NUMBER: IT 210 CREDIT HOURS: 2

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TRANSFERABLE YES: NO: TO:

PREREQUISITE(S)/COREQUISITE(S)/ADVISORY:

PREREQUISITE: IT 150 or A pretest may be taken in lieu of prerequisites with instructor approval.

CATALOG DESCRIPTION: IT 210 Designing a Microsoft Windows 2000 Networking Services Infrastructure
This course teaches you how to analyze the business and technical requirements of an organization and then create an appropriate Microsoft Windows 2000–based networking services design. You will evaluate given designs and recommend solutions to improve the security, availability, and performance characteristics of the network. The emphasis of the course is translating business goals into design requirements. Additionally the course will help prepare you for the Microsoft Certified Systems Engineer Exam 70-221. Prerequisite, IT 150 or instructor approval.

GENERAL EDUCATION OUTCOMES OR OCCUPATIONAL PROGRAM OUTCOMES

The purpose of General Education requirements in our degree programs is to enable students to develop their ability to reason, to communicate effectively in both oral and written form, and to acquire sufficient knowledge of their heritage to participate fully in society and the world. Upon completion of an associate degree program, a graduate will be able to:

1. Think critically and analytically: The course requires a student assess a given organization’s current and future network needs, then create a design that incorporates an organization’s IT management and technical support structure finally, they must analyze the impact of infrastructure design on the existing and planned technical environment.
1. Write and speak effectively: The course requires a student to document completion of each laboratory assignment with a clearly written professionally formatted letter. Prior to taking the final examination

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each student must pass an oral examination in which students must clearly articulate their understanding of an instructor selected topic.

1. Independently acquire knowledge: The course is an instructor guided self-study program. Instructor guidance is used to help students develop concepts through pre-designed exercises and exploration in a controlled environment. Online supplements are provided for both remedial support and in-depth investigations.
1. Select and use mathematical tools for problem solving and decision-making: The course requires a student use a binary to decimal conversions to design a sub-netted configuration which is used to design a DHCP scope for IP assignments.

COURSE OBJECTIVES & OUTCOMES:

Upon successful completion of this course, you will have learned to

1. Analyze the current business environment, including the company model, organizational structure, geographic scope, and company processes. Analyze the impact of infrastructure design on the existing and planned technical environment.
2. Assess an organization's current and future network needs, including existing hardware, current applications, existing protocols, scalability, performance, security, and disaster recovery. Create a design that incorporates an organization's IT management and technical support structure.
3. Design a TCP/IP networking strategy that includes analyzing IP subnet requirements, designing a TCP/IP addressing plan, optimizing a TCP/IP network design, and integrating TCP/IP with existing WAN requirements.
4. Design a data protection strategy for local and remote access that includes implementing security methods such as MPPE, L2TP, VPN tunnels, IPSec, and TCP/IP filters.
5. Design a DHCP strategy that includes integrating DHCP into a Windows 2000 routed environment and optimizing the DHCP network design.
6. Design name resolution services in the network, including DNS and WINS. Create a network design that is secure, highly available, and optimized. Develop a deployment strategy for these services.
7. Evaluate multiprotocol routing designs and design a multiprotocol strategy. Protocols include IPX/SPX, AppleTalk, and SNA.
8. Develop a remote access implementation strategy that uses Routing and Remote Access. The remote access solutions include dial-up connectivity, VPN, and RADIUS. The design should include authentication.
9. Design an Internet and intranet access solution, including proxy server, firewalls, Routing and Remote Access, and NAT services
10. Monitor and manage Windows 2000 network services and resources, including planning for the placement and management of resources. Also design a plan for the interaction of networking services such as WINS, DHCP, and DNS.

METHODS OF INSTRUCTION: This course will be completed as an instructor directed self-study using laboratory exercises coinciding with assigned readings and online supplemental study aids.

METHODS OF EVALUATION:

Tests (1) = 30%

Quizzes = 30%

Assignments and lab work = 30%

Oral examination = 10%

Grading Scale: A (95), A- (90), B+ (87), B (83), B-(80), C+(77), C (73), C-(70), E-(less than 70)

1. The test will be scheduled with advance notice upon completion of all labs, quizzes, and an oral examination. The test will consist of questions derived from labs, and assigned readings.
 2. Quizzes will be given at completion of each chapter lab assignment. Quizzes will consist of questions derived from labs, and assigned readings.
 3. Lab exercises will be completed in conjunction with assigned readings. Before leaving the lab, the instructor must view your lab assignments. To ensure you receive credit for the lab you must turn in a lab report written as a letter in the professional format provided by the instructor.
 4. An oral examination will be conducted upon completion of all assignments. During the examination the student must demonstrate satisfactory knowledge in an area to be determined by the instructor.
- Quizzes, tests, and the oral examination must be passed with a score of 70 or greater. Examinations may be retaken after a waiting period of at least one day. In all reexaminations the highest achievable score will be 70.

REQUIRED TEXTS:

***ALS: Designing a Microsoft Windows 2000 Network Infrastructure* textbook and *ALS: Designing a Microsoft Windows 2000 Network Infrastructure Project Manual* (Microsoft Press, 2001).**

SEQUENCE OF INSTRUCTION:

The following is a tentative schedule based on individual student needs. The instructor reserves the right to make any schedule changes deemed necessary and assign online supplemental activities as necessary. The entire sequence must be completed by the end of the calendar semester. Laboratory access is limited to 12 hours per week for this course.

Assignment	Activity	Lab Exercises	Examinations
Assignment 1	Chapter 1, Lesson 1 Chapter 1, Lesson 2 Chapter 1, Lesson 3 Chapter 2, Lesson 1	Project 1	
Assignment 2	Chapter 2, Lesson 2 Chapter 2, Lesson 3 Chapter 2, Lesson 4 Chapter 2, Project 1	Project 2	
Assignment 3	Chapter 3, Lesson 1 Chapter 3, Lesson 2 Chapter 3, Lesson 3 Chapter 3, Lesson 4 Chapter 3, Project 2	Project 3	
Assignment 4	Chapter 4, Lesson 1 Chapter 4, Lesson 2 Chapter 4, Lesson 3 Chapter 4, Lesson 4 Chapter 4, Project 3	Project 4	

Assignment 5	Chapter 5, Lesson 1 Chapter 5, Lesson 2 Chapter 5, Lesson 3 Chapter 5, Project 4 Chapter 6, Lesson 1	Project 5	Quiz, Chapters 1-5
Assignment 6	Chapter 6, Lesson 2 Chapter 6, Lesson 3 Chapter 6, Lesson 4 Chapter 6, Project 5	Project 6	
Assignment 7	Chapter 7, Lesson 1 Chapter 7, Lesson 2 Chapter 7, Lesson 3 Chapter 7, Lesson 4 Chapter 7, Project 6	Project 7	
Assignment 8	Chapter 8, Lesson 1 Chapter 8, Lesson 2 Chapter 8, Lesson 3 Chapter 8, Lesson 4 Chapter 8, Project 7	Project 8	
Assignment 9	Chapter 9, Lesson 1 Chapter 9, Lesson 2 Chapter 9, Lesson 3 Chapter 9, Lesson 4 Chapter 9, Project 8	Project 9	
Assignment 10	Chapter 10, Lesson 1 Chapter 10, Lesson 2 Chapter 10, Lesson 3 Chapter 10, Lesson 4 Chapter 10, Project 9	Project 10	Quiz chapters, 10
Assignment 11	Chapter 11, Lesson 1 Chapter 11, Lesson 2 Chapter 11, Lesson 3 Chapter 11, Lesson 4 Chapter 11, Project 10 Chapter 12, Lesson 1	Project 11	
Assignment 12	Chapter 12, Lesson 2 Chapter 12, Lesson 3 Chapter 12, Lesson 4 Chapter 12, Project 11 Chapter 13, Lesson 1	Project 12	

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Assignment 13	Chapter 13, Lesson 2 Chapter 13, Lesson 3 Chapter 13, Lesson 4 Chapter 13, Project 12 Chapter 14, Lesson 1 Chapter 14, Lesson 2	Project 13	
Assignment 14	Chapter 14, Project 13 Chapter 15, Lesson 1 Chapter 15, Lesson 2 Chapter 15, Lesson 3 Chapter 15, Project 14	Project 14	Quiz, Chapters 11-15 Oral Examination Final Examination

Reasonable accommodations may be provided for students with documented physical, sensory, cognitive, systemic, and/or psychiatric disabilities. Please contact the Education Opportunity Program (EOP) at (231) 348-6687 to arrange services for this course.

APPROVED FOR ADOPTION BY THE CRD/AP COMMITTEE ON _____