

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON



COURSE OUTLINE

Course Title: NETWORK CERTIFICATION II

Code No.: CSN305 Semester: 6

Program: COMPUTER NETWORK TECHNOLOGY

Author TYCHO BLACK

Date: January, 2002 Previous Outline Date: January, 2001

Approved: _____
Dean Date

Total Credits: 4

Prerequisite: **Computer Network Technician Diploma**
(or permission of the Co-ordinator)

Hours per week: 4 Total Credit Hours: 60

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I. COURSE DESCRIPTION:

This course continues the preparation for certification in a networking area of specialisation. At the present time a course in the Microsoft™ Certified Systems Engineer (MCSE) certification will be the basis for this course. Lectures on the important topics will be provided with lab activities designed to develop hands-on skills. Students will use available resources, MCSE exam preparation guides, sample tests and hands-on lab activities to prepare for the specific objectives as published by Microsoft™. The chosen track for this course will be the Microsoft Windows 2000 Server curriculum. The exam prepared for in this course is *Exam 70-216: Implementing and Administering a Microsoft™ Windows 2000 Network Infrastructure*.

Rationale:

The MCSE curriculum is extensive and beyond the domain of a single course. This course in itself does not result in MCSE certification; formal exams must subsequently be taken at a Prometric™ Testing Centre at the student's own expense.

Current Windows 2000 MCSE Requirements:

Candidates must pass 5 core exams and two elective exams. The core exams require candidates to prove their expertise with desktop, server and networking components. The complete requirements are published at <http://www.microsoft.com/trainingandservices/>.

These specific requirements are subject to change; the four core operating systems exams are presently as follows:

- Exam 70-210: Installing, configuring and Administering Microsoft® Windows® 2000 Professional
- Exam 70-215: Installing, Configuring, and Administering Microsoft® Windows® 2000 Server
- Exam 70-216: Implementing and Administering a Microsoft® Windows® 2000 Network Infrastructure
- Exam 70-217: Implementing and Administering a Microsoft® Windows® 2000 Directory Services Infrastructure

Plus one of the following core exams:

- Exam 70-219: Designing a Microsoft® Windows® 2000 Directory Services Infrastructure
- Exam 70-220: Designing Security for a Microsoft® Windows® 2000 Network

- Exam 70-221: Designing a Microsoft® Windows® 2000 Network Infrastructure

Plus any two of the following elective exams:

- Exam 70-219: Designing a Microsoft® Windows® 2000 Directory Services Infrastructure
- Exam 70-220: Designing Security for a Microsoft® Windows® 2000 Network
- Exam 70-221: Designing a Microsoft® Windows® 2000 Network Infrastructure
- Exam 70-222: Migrating from Microsoft® Windows NT® 4.0 to Microsoft® Windows® 2000

The exam prepared for in this course is:

Exam 70-216: Implementing and Administering a Microsoft® Windows® 2000 Network Infrastructure

Skills Being Measured

This certification exam measures the ability to implement, administer, and troubleshoot information systems that incorporate Microsoft® Windows® 2000.

Before taking the exam, you should be proficient in the job skills listed below.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning outcomes:

Note: the context for all learning outcomes is a Windows 2000 Network Infrastructure

1. Install, Configure, Manage, Monitor, and Troubleshoot DNS.
2. Install, Configure, Manage, Monitor, and Troubleshoot DHCP
3. Configure, Manage, Monitor, and Troubleshoot Remote Access
4. Install, Configure, Manage, Monitor, and Troubleshoot Network Protocols
5. Install, Configure, Manage, Monitor, and Troubleshoot WINS
6. Install, Configure, Manage, Monitor, and Troubleshoot IP Routing
7. Install, Configure, and Troubleshoot Network Address Translation (NAT)
8. Install, Configure, Manage, Monitor, and Troubleshoot Certificate Services

B. Learning Outcomes and Elements of the Performance:

Upon successful completion of this course the student will demonstrate the ability to:

1. Install, Configure, Manage, Monitor, and Troubleshoot DNS

Elements of the Performance:

- Install the DNS Server service.
- Configure a root name server, zones and a caching-only server.
- Configure a DNS client.
- Configure zones for dynamic updates.
- Test the DNS Server service.
- Implement a delegated zone for DNS.
- Manually create DNS resource records.
- Manage and monitor DNS.

2. Install, Configure, Manage, Monitor, and Troubleshoot DHCP

Elements of the Performance:

- Install, configure, and troubleshoot DHCP.
- Install the DHCP Server service.
- Create and manage DHCP scopes, superscopes, and multicast scopes.
- Configure DHCP for DNS integration.
- Authorize a DHCP server in Active Directory™.
- Manage and monitor DHCP.

3. Configure, Manage, Monitor, and Troubleshoot Remote Access

Elements of the Performance:

- Configure inbound connections.
- Create a remote access policy.
- Configure a remote access profile.
- Configure a virtual private network (VPN).
- Configure multilink connections.
- Configure Routing and Remote Access for DHCP Integration.
- Manage and monitor remote access.

- Configure remote access security and authentication and encryption protocols.
- Create a remote access policy.

4. Install, Configure, Manage, Monitor, and Troubleshoot Network Protocols

Elements of the Performance:

- Install and configure TCP/IP.
- Install the NWLink protocol.
- Configure network bindings.
- Configure TCP/IP packet filters.
- Configure and troubleshoot network protocol security.
- Manage and monitor network traffic.
- Configure and troubleshoot IPsec.
- Enable IPsec.
- Configure IPsec for transport mode and tunnel mode.
- Customize IPsec policies and rules.

5. Install, Configure, Manage, Monitor, and Troubleshoot WINS

Elements of the Performance:

- Configure WINS replication.
- Configure NetBIOS name resolution.
- Manage and monitor WINS.

6. Install, Configure, Manage, Monitor, and Troubleshoot IP Routing

Elements of the Performance:

- Update a Windows 2000-based routing table by means of static routes.
- Implement Demand-Dial Routing.
- Manage and monitor IP routing including IP routing protocols, border routing and internal routing.

7. Install, Configure, and Troubleshoot Network Address Translation (NAT)

Elements of the Performance:

- Install Internet Connection Sharing.
- Install NAT.

- Configure NAT properties and interfaces.

8. Install, Configure, Manage, Monitor, and Troubleshoot Certificate Services

Elements of the Performance:

- Install and configure Certificate Authority (CA).
- Issue and revoke certificates.
- Remove the Encrypting File System (EFS) recovery keys.

III. TOPICS TO BE COVERED:

1. Windows 2000 Server-based DNS
2. DHCP
3. Remote Access
4. Network Protocols
5. WINS
6. IP Routing
7. NAT
8. Certificate Services

IV. REQUIRED STUDENT RESOURCES/TEXTS:

Students will be required to purchase a Microsoft Certified Professional Approved Study Guide, specifically

- **“MCSE Guide to Microsoft® Windows® 2000 Networking”, by Kelly Caudle and Walter Glenn (Thomson Learning, ISBN 0-619-01645-0)**

V. EVALUATION PROCESS/GRADING SYSTEM:

Students will be given on-line tests similar to the actual MCSE exams. The final marks will be based on a weighted-average of the tests taken; with the final test having the highest weight. There will be a minimum of two on-line tests

Weekly quizzes and assignments	50%
On-line Windows 2000 Network Infrastructure Tests	50%

Note: This evaluation scheme is subject to change if circumstances warrant. Any changes will be discussed with students and reported in writing before implementation.

GRADING SYSTEM

A+	90	-	100%
A	80	-	89%
B	70	-	79%
C	60	-	69%
R	Repeat		Less than 60%
X	Incomplete		

UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 60%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The student's attendance has been satisfactory.
2. An overall average of at least 50% has been achieved by semester's end on the tests taken.
3. The student has made reasonable efforts to participate in class and maintain the recommended schedule for assigned activities.

The nature of the upgrading requirements will be determined by the instructor and may involve re-testing and/or additional lab assignments

ATTENDANCE:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the instructor.

VI. SPECIAL NOTES:

Special Needs

Students with special needs (e.g. physical limitations, visual or hearing impairments, or learning disabilities) are encouraged to discuss any required accommodations confidentially with the instructor and/or contact the Special Needs Office so that support services can be arranged.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Course Modifications

Your instructor reserves the right to make reasonable modifications to the course

as deemed necessary to meet the needs of students or take advantage of new or different learning opportunities.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced standing in the course should consult the instructor. If a student has already achieved MCSE certification in the exam this course is based on, credit may be granted upon proof of certification being demonstrated.