

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Network Certification II
CODE NO. : CSN305 **SEMESTER:** 5
PROGRAM: Computer Network Technology
AUTHORS: Dan Kachur
DATE: June, 2008 **PREVIOUS OUTLINE DATED:** June, 2007

APPROVED:

CHAIR **DATE**

TOTAL CREDITS: 4

PREREQUISITE(S): Computer Network Technician Diploma
(or permission of the Co-ordinator)

HOURS/WEEK: **64 Hours Total – 4 hours per week**

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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 questions 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 2003 Server curriculum. The exam prepared for in this course is *Exam 70-291: 'Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 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 or MCP certification; formal exams must subsequently be taken at an authorized Microsoft Testing Centre at the personal expense of the student.

Current Windows 2003 MCSE Requirements:

Candidates must pass 6 core exams and one elective exam. 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/learning/mcp/mcse/windows2003/>

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

[Exam 70-290](#): Managing and Maintaining a Microsoft Windows Server 2003 Environment

[Exam 70-291](#): Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure

[Exam 70-293](#): Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure

[Exam 70-294](#): Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure

The one core 'Client Operating System' exam is as follows:

[Exam 70-270](#): Installing, Configuring, and Administering Microsoft Windows® XP Professional
OR

[Exam 70-210](#)¹: Installing, Configuring, and Administering Microsoft Windows 2000 Professional

The one core 'Design' exam is as follows:

[Exam 70-297](#)^{2, 3}: Designing a Microsoft Windows Server 2003 Active Directory and Network Infrastructure

OR

[Exam 70-298](#)^{2, 3}: Designing Security for a Microsoft Windows Server 2003 Network

One additional Elective exam is required. There are 14 elective exams to choose from.

This course is preparing you for Exam 70-291.

'Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure'

Skills Being Measured

This certification exam measures the ability to implement, administer, and troubleshoot information systems that incorporate Microsoft® Windows® 2003.

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

II. 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.

Potential 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

Potential 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

Potential 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

Potential 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 WINSPotential Elements of the Performance:

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

6. Install, Configure, Manage, Monitor, and Troubleshoot IP RoutingPotential 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)Potential Elements of the Performance:

- Install Internet Connection Sharing.
- Install NAT.
- Configure NAT properties and interfaces.

8. Install, Configure, Manage, Monitor, and Troubleshoot Certificate ServicesPotential Elements of the Performance:

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

III. TOPICS:

| <u>SPECIFIC TOPICS</u> | <u>APPROPRIATE TIME</u> (Weeks) |
|----------------------------------|--------------------------------------|
| 1. Windows 2003 Server-based DNS | 2 |
| 2. DHCP | 2 |
| 3. Remote Access | 3 |
| 4. Network Protocols | 2 |
| 5. WINS | 1 |
| 6. IP Routing | 1 |
| 7. NAT | 2 |
| 8. Certificate Services | 2 |

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

“MCSE Guide to Managing a Microsoft Windows 2003 Server Network, Enhanced” Edition

Authors: Eckert & Schitka

ISBN: 0-619-21753-7

V. EVALUATION PROCESS / GRADING SYSTEM:

| | |
|------------------------------|------|
| Tests (3 @ 15% each) | 45 % |
| LMS Quizzes | 20 % |
| Participation and Attendance | 10 % |
| Lab Assignments | 25 % |

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

The following semester grades will be assigned to students courses:

| Grade | <u>Definition</u> | <i>Grade Point Equivalent</i> |
|--------------|---|-----------------------------------|
| A+ | 90 – 100% | 4.00 |
| A | 80 – 89% | 3.00 |
| B | 70 - 79% | 2.00 |
| C | 60 - 69% | 1.00 |
| D | 50 – 59% | 0.00 |
| F (Fail) | 49% and below | |
| CR (Credit) | Credit for diploma requirements has been awarded. | |

| | |
|----|--|
| S | Satisfactory achievement in field /clinical placement or non-graded subject area. |
| U | Unsatisfactory achievement in field/clinical placement or non-graded subject area. |
| X | A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. |
| NR | Grade not reported to Registrar's office. |
| W | Student has withdrawn from the course without academic penalty. |

UPGRADING OF INCOMPLETES:

When a student's course work is incomplete or final grade is below 50%, 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 45% 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. There will be a 1% penalty for each 2-hour class missed in this course (up to a maximum of 10%). Students must notify the professor in advance if they are not able to attend class to write a test. Showing up after the test has been administered and asking to write is not acceptable unless your absence was due to unavoidable circumstances and you had no method of contacting the professor.

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

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 postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical, as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.