



**COURSE DESCRIPTION:**

- I. 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:**

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 WINS  
Potential Elements of the Performance:
  - Configure WINS replication.
  - Configure NetBIOS name resolution.
  - Manage and monitor WINS.
  
6. Install, Configure, Manage, Monitor, and Troubleshoot IP Routing  
Potential 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 Services  
Potential Elements of the Performance:
  - Install and configure Certificate Authority (CA).
  - Issue and revoke certificates.
  - Remove the Encrypting File System (EFS) recovery keys.

### III. TOPICS:

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 RESOURCES / TEXTS / MATERIALS:**

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

“MCSE Guide to Microsoft Windows 2000 Networking Certification Edition”  
 Authors: Caudle, Glenn, Stewart  
 ISBN: 0619186844

**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.

The following semester grades will be assigned to students in postsecondary courses:

<b>Grade</b>	<b><u>Definition</u></b>	<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.

## 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 493 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.

### 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 advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.