

## Course Specifications

### Implementing Microsoft Windows 2000 Clustering

**Course number:** 2087

**Course length:** 3 days

### Registration:

**CAD & Facilities Services, Inc.**

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## Implementing Microsoft Windows 2000 Clustering

The goal of this course is to provide the student with the skills to select the appropriate implementation of business solutions that require fault tolerance and high availability.

### Audience

This course is intended for IT Professionals who are associated with organizations that need to provide access to services or data in a high availability environment or for large user populations.

### At Course Completion

At the end of the course, students will be able to:

- Introduce Microsoft® Windows® 2000 Clustering fundamentals including clustering, Network Load Balancing, and component load balancing.
- Identify key concepts of Microsoft Cluster Service.
- Identify hardware and network requirements and configure a computer running Microsoft Windows 2000 Advanced Server in preparation for installing Cluster service.
- Install Microsoft Cluster Service, identify changes to the operating system, and locate key Cluster service files and describe their function.
- Create cluster resources by using cluster administration tools.
- Perform basic maintenance and troubleshooting tasks for server clusters.
- Plan the implementation of a Network Load Balancing cluster.
- Install and configure a Network Load Balancing service.
- Perform administrative tasks on a Network Load Balancing cluster.

### Prerequisites

Before attending this course, students must have completed Course 2153A, *Implementing a Microsoft Windows 2000 Network Infrastructure*, or equivalent skills, or Course 1560B, *Updating Support Skills from Microsoft Windows NT 4.0 to Microsoft Windows 2000* or have equivalent skills.

### Microsoft Certified Professional Exams

This course helps you prepare for the following Microsoft Certified Professional exams:

- Cluster Service 70-223

### Student Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.



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The following software is provided for use in the classroom:

- Microsoft Windows 2000 Advanced Server

### Module 1: Introduction to Windows Clustering

The following topics are covered in this module:

- Defining Cluster Features
- Introducing Application Architecture
- Identifying clustering technologies that can improve availability and scalability in an enterprise system.
- Identify the available Microsoft clustering technologies.
- Identify the similarities and appropriate use of the clustering technologies.
- Identify the applications and services that can benefit from clustering technologies.

At the end of this module, you will be able to introduce Windows 2000 Clustering fundamentals, including Server Cluster, Network Load Balancing, and component load balancing.

### Module 2: Concepts of Server Clusters

The following topics are covered in this module:

- Introduction to Server Clusters
- Key Concepts of a Server Cluster
- Choosing a Server Cluster Configuration
- Applications and Services on Server Clusters

At the end of this module, you will be able to identify key concepts of Microsoft Cluster Service.

### Module 3: Preparing for Cluster Service Installation

The following topics are covered in this module:

- Pre-installation Considerations
- Identifying Hardware Considerations
- Assigning IP Addresses Within a Cluster
- Assigning Names Within a Cluster
- Determining Domain Considerations
- Existing Services and Applications

At the end of this module, you will be able to identify hardware and network requirements and configure a computer running Windows 2000 Advanced Server in preparation for installing Cluster service. This includes:

- Preparing the student computers and network for the installation of the Cluster service on both student computers.

### Module 4: Installing Cluster Service

The following topics are covered in this module:

- Installing Cluster Service

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- Post-installation

At the end of this module, you will be able to install Cluster service, identify changes to the operating system, and locate key Cluster service files and describe their function. This includes:

- Forming the cluster.
- Identifying what components, configuration changes, and services have been added and made to the computers during installation.

### Module 5: Cluster Administration

The following topics are covered in this module:

- Administration Tools
- Configuring the Cluster Properties
- Creating a Group
- Creating a Cluster Resource
- Failover and Failback

At the end of this module, you will be able to create cluster resources by using cluster administration tools. This includes:

- Using Cluster Administrator to create and manage cluster resources.
- Setting failover and failback parameters for groups and resources.

### Module 6: Creating Cluster Resources

The following topics are covered in this module:

- Creating a File Share Resource
- Creating a Cluster Print Share
- Configuring Clustered Applications and Services
- Using Cluster Application Wizard

At the end of this module, you will be able to create cluster resources by using Cluster Administrator. This includes:

- Configuring a file share resource.
- Creating a cluster print share.
- Configuring generic applications and services.

### Module 7: Server Cluster Maintenance and Troubleshooting

The following topics are covered in this module:

- Cluster Maintenance
- Troubleshooting Cluster Service

At the end of this module, you will be able to perform basic maintenance and troubleshooting tasks for server clusters. This includes:

- Performing backup and restore procedures.
- Identifying the tools used to troubleshoot a cluster failure.
- Interpreting the entries on the cluster log.
- Identifying and resolving common server cluster failures.



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## Module 8: Concepts of Network Load Balancing Cluster

The following topics are covered in this module:

- Network Load Balancing Concepts
- Application and Service Environment
- Network Load Balancing Functionality
- Network Load Balancing Architecture

At the end of this module, you will be able to plan the implementation of a Network Load Balancing cluster. This includes:

- Planning a Network Load Balancing installation.

## Module 9: Installing and Configuring Network Load Balancing

The following topics are covered in this module:

- Pre-installation
- Network Load Balancing Driver Installation
- Configuring the Network Load Balancing Driver
- Cluster Parameters
- Host Parameters
- Port Rules
- TCP/IP Properties
- Post-Installation Configuration

At the end of this module, you will be able to install and configure a Network Load Balancing cluster. This includes:

- Installing and configuring the Network Load Balancing driver.
- Reviewing post-installation changes on a Network Load Balancing driver.

## Module 10: Network Load Balancing Cluster Administration

The following topics are covered in this module:

- Command Line Administration
- Programmatic Management Solutions
- Microsoft Application Center Server 2000

At the end of this module, you will be able to perform administration tasks on a Network Load Balancing cluster. This includes:

- Demonstrating the ability to administer the Network Load Balancing server by using the GUI interface.
- Demonstrating the ability to administer the Network Load Balancing server by using the command line.

## Module 11: Troubleshooting a Network Load Balancing Cluster

The following topics are covered in this module:

- Using Status Tools and Utilities
- Troubleshooting Problems
- Using Network Tools and Utilities



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At the end of this module, you will be able to analyze and repair a Network Load Balancing cluster. This includes:

- Demonstrating the ability to recognize and resolve the most common errors seen with Network Load Balancing.

### Module 12: Microsoft Windows 2000 Clustering

The following topics are covered in this module:

- Application of Clustering Technology
- Testing Tools

At the end of this module, you will be able to plan and implement solutions by using multiple Microsoft Clustering technologies. This includes:

- Planning and implementing a complex cluster by using multiple technologies.



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