

ITSC 1046

Course Syllabus

1. Name of Course: Solaris[tm] 10 Operating Environment System Administration II

2. Number of Clock Hours: 40 hours

3. Course Description:

The Solaris[tm] 10 Operating Environment System Administration II course provides students with the skills necessary to administer Sun[tm] systems running the Solaris 10 Operating Environment in a network environment. Students are taught how to maintain Sun systems, configure and troubleshoot the NFS, and configure the Network Information System (NIS) environment.

4. Course Objectives

Upon completion of this course, you should be able to:

- Install and configure a Solaris Operating Environment server
- Identify and describe the files and commands used to control and monitor access to various machines in a network environment
- Set up event logging
- Administer disks using a volume-management utility
- Redirect all core dumps to a single coredump directory
- Configure NFS to support the client-server environment
- Use the automounter
- Set up and configure CacheFS[tm] file systems
- Use Solaris Management Console[tm] to perform administrative system management duties
- Set up a role
- Describe the various naming services: Domain Name System (DNS), NIS, Network Information System Plus (NIS+), and Lightweight Directory Access Protocol (LDAP)
- Configure and administer the NIS environment
- Use JumpStart[tm] to automate a Solaris Operating Environment installation

5. Rationale:

Upon completion of this course, students will have a better understanding of Sun Solaris, a powerful and popular operating system.

6. Required Materials:

Sun Academic Initiative courseware included.

7. Evaluation

Those who participate in class discussions, complete course lab work, and miss no more than three class meetings will be awarded 4.0 continuing education units.

8. Course Outline

Module 1: Introducing the Client-Server Relationship

- Describe the client-server computing model within the Solaris 10 Operating Environment
- Describe network capabilities

Module 2: Introducing the Solaris Network Environment

- Describe the function of the network models
- Define the layers of the network models
- Compare and contrast the seven-layer International Organization for Standards/Open System Interconnect (ISO/OSI) model to the five-layer Transmission Control Protocol/Internet Protocol (TCP/IP) model
- Identify which protocols fit at each layer, and briefly define the protocols
- Use block diagrams to depict encapsulation and de-encapsulation
- Demonstrate knowledge of how host names, IP addresses, and media access control (MAC) addresses are interrelated
- List the current system configuration using the `ifconfig -a` command
- Monitor for network activity using the `netstat -i` command and the `snoop -a` command

Module 3: Solaris Operating Environment syslog()

- Define the function of the `syslogd` daemon
- Configure the `/etc/syslog.conf` file to define where to log events
- Extract information from the `/etc/syslog.conf` file to identify the facility and level of events that are logged by the system
- Modify the configuration file to reroute logs to an alternate location
- Parse messages to `syslog`

Module 4: Introducing Disk Management

- List the three utilities used to create, check, and mount file systems
- Identify the physical path name differences between physical disks and virtual disks
- List the potential advantages of any virtual disk management application
- List the basic difference between Solstice DiskSuite[tm] and Sun StorEdge[tm] Volume Manager
- List the main advantages of using a concatenated virtual file system
- List the main advantage of using a striped virtual file system
- Install the Solstice DiskSuite applications
- Use the Solstice DiskSuite application to dynamically grow a file system

Module 5: Solaris Pseudo File Systems and Swap Space

- List Solaris random access memory (RAM) -based file systems
- Create and add a swap file to the swap space
- Remove a swap file

Module 6: NFS

- Describe the functions of an NFS server and an NFS client
- List the three conditions that must be met before sharing files in the NFS environment
- Make resources available and unavailable for mounting

- Provide read and write Internet access to an NFS resource through a Web browser
- Enable the sharing of resources by editing the /etc/dfs/dfstab file on an NFS server
- Display server resources that are available for mounting
- Mount a resource from another system
- Use the /etc/vfstab file to mount resources on an NFS client
- Describe the function of these commands: mountall, umountall, shareall, and unshareall

Module 7: AutoFS

- Describe three benefits of using the automount command
- Describe the purpose of each automount map type
- Set up automount to read a direct map
- Describe when the automountd daemon should be restarted

Module 8: CacheFS File Systems

- Describe the native characteristics of the CacheFS file system
- Collect CacheFS file system statistics
- Perform CacheFS file system consistency checks
- Configure CacheFS file system logging

Module 9: Solaris Management Console

- List the capabilities of the Solaris Management Console
- Use the Solaris Management Console Editor to modify server toolboxes
- Add legacy applications, such as command-line interfaces, X applications, and Hypertext Markup Language (HTML) to the Solaris Management Console using the Solaris Management Console Editor
- Demonstrate the use of the Solaris management applications using the Solaris Management Console

Module 10: Role-Based Access Control

- Build an association between users and roles with authorizations and execution profiles
- Define authorizations and their attributes
- List a profile's assigned authorizations
- Define the privileged operations that are assigned to a profile
- Identify help files that are associated with profiles and authorizations
- Configure a user's execution profile to allow access to a specified subset of system administrator privileges

Module 11: Naming Services Overview

- Explain the name service concept
- List the name services available

- Describe the DNS
- Describe NIS service
- Describe the function of NIS+
- List the table objectives of a NIS+ domain
- Differentiate between directory services and name services
- Explain the name service switch process and state which configuration is appropriate for a given network scenario

Module 12: Network Information System

- Describe the NIS components, master server, slave server, and client
- Match selected NIS processes to their respective yp daemons
- Demonstrate understanding of the structure of the make utility and makefile
- Configure a NIS master, slave, and client
- Access and test the NIS service
- Add custom maps to the existing NIS configuration
- Demonstrate adding and removing slave servers
- Delineate the steps required to change the NIS master
- Move source files from /etc to /etc/nis

Module 13: JumpStart Automatic Installation

- Describe the features of JumpStart
- List the main components for setting up a network to use automatic installation
- Set up the network to automatically provide the information necessary to configure a system
- Create an install server on the network
- Create a boot server on a subnet
- Create a configuration directory with a customized rules file and class files
- Add install clients to install servers and boot servers
- Boot install clients

Module 14: Solaris Administrator Workshop

- Use the classroom lab that tests the skills learned in the System Administration I and II courses (SA-238 and SA-288)