

## **ITSC 1014 Course Syllabus**

### **1. Name of Course:** UNIX Fundamentals for System Administrators

### **2. Number of Clock Hours:** 32 hours

### **3. Course Description:**

The UNIX Fundamentals for System Administrators course teaches you how to use UNIX® operating system commands and basic Solaris Operating Environment commands. The class is for new users of the Solaris environment. Student will learn fundamental command-line features of the Solaris Operating Environment including file system navigation, file permissions, the vi text editor, command shells, and basic network use.

### **4. Course Objectives**

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

- Log in and log out of Solaris and Common Desktop Environments (CDE)
- Compose command-line strings to perform functions
- Navigate the directory tree
- Manipulate text files
- Create files and directories
- Back up and restore user files and directories
- Change permissions of files and directories
- Use the vi text editor
- Identify and modify initialization files
- Employ shell features to streamline command execution
- Use basic network commands
- Use commands to search directories and files
- List active user processes and selectively kill user processes

### **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**

Students who participate in class discussions, complete course lab work, and miss no more than three class meetings will be awarded 3.2 continuing education units.

### **8. Course Outline**

#### **Module 1: Introduction to the Solaris 10 Operating Environment**

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- Identify the main hardware components of the computer system
- Describe the Solaris Operating Environment in terms of its software components
- List the main purpose for the default user shells

## **Module 2: Accessing the System**

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- Log in and out of the system
- Work with password requirements
- Change your password from the command line and CDE
- Use command-line syntax
- Use online manual pages to aid in constructing command lines

## **Module 3: Accessing Files and Directories**

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- Work with the directory tree
- Use absolute and relative pathnames
- Use the cd command to change directories
- Employ the pwd command to display the current directory
- Work with pathname abbreviations
- Use the ~ and - expressions
- Use the ls command
- Identify and use metacharacters

## **Module 4: Directory and File Commands**

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- Use control characters
- Determine file type using the file command
- Display files using the cat, more, head, and tail commands
- Employ the wc command
- Create files with the touch command
- Use the tee command
- Create directories
- Remove files and directories
- Copy files and directories
- Move and rename files and directories
- Print files and cancel print requests

## **Module 5: Searching for Files and Text**

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- Find files using specific criteria
- Search for text within documents
- Sort files alphabetically or numerically
- Perform multilevel sorting
- Compare the contents of text files

## **Module 6: File Security**

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- Determine file access
- Describe types of permissions
- Set standard permissions on a file
- Work with permission categories
- Change permissions with symbolic mode
- Change permissions with absolute (octal) mode

- Determine the umask value

### **Module 7: Visual (vi) Editor**

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- Use various vi modes
- Invoke vi
- Employ input, positioning, and editing commands
- Use advanced editing options
- Create and save a file

### **Module 8: Archiving User Data**

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- Describe the backup and restore functions
- Use the tar utility to store files
- Backup files with the tar and compress commands
- Use the jar command
- Use compression tools to save storage space
- Use the cpio command

### **Module 9: Remote Connections**

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- Connect remotely using telnet
- Remotely access a system using rlogin
- Transfer files with ftp

### **Module 10: System Processes**

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- Display system processes
- Use processes and process identifiers (PIDs)
- Identify parent and child processes
- Terminate processes using the kill command
- Use the pgrep and pkill commands

### **Module 11: The Korn Shell**

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- Define shell features
- Work with variable types
- Use shell variables
- Describe user-defined shell variables
- Customize shell variables
- Display shell variables
- Apply predefined environment variables
- Export variables
- Redirect output using the shell
- Work with environment variables
- Configure the shell environment

### **Module 12: Introduction to sed and awk**

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- Editing the contents of a text file from the command line
- Send the results of command-line editing to standard output
- Use regular expression metacharacters to delete lines, add text to lines, or change characters with sed commands
- Use awk to scan text files or standard input to display specific data, change data format, and add text to existing data

### **Module 13: Reading Shell Scripts**

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- Use basic shell commands
- Define shell variables
- Pass command-line variables to a shell script
- Decipher basic shell scripts