

## Introduction to UNIX and Shell Scripting

**Length:** 4 Days

### Course Description:

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

Students will learn the basic skills necessary to understand the structure of the UNIX operating system and to use the available Korn Shell utilities to manage their environment. In addition to UNIX fundamentals, students will learn to read, write and debug shell scripts, thus increasing productivity by taking full advantage of the UNIX shell.

### Prerequisites

The Logical Operations PC Literacy course or equivalent knowledge.

### Outline

#### Lesson 1: Establishing communication

- Starting the UNIX session
- Using basic UNIX commands
- Understanding the UNIX command syntax
- Using the UNIX "help" facility: the manual pages

#### Lesson 2: Introduction to the filing system

- Examining UNIX files and directories
- Moving through the file system
- Using full and partial paths
- Understanding current and parent directories

#### Lesson 3: File management

- Creating directories
- Copying files and directories
- Moving and renaming files and directories
- Removing files and directories
- Using shell metacharacters

#### Lesson 4: UNIX permissions

- Understanding permissions
- File permissions
- Directory permissions
- Changing default permissions with umask
- Lesson 5: Redirection, filters, and pipes

- Exploring standard input, standard output, and standard error
- Using filters
- Using pipes

#### Lesson 6: Using the VI editor

- Creating a vi file
- Editing a vi file
- Working with database files
- Advanced vi techniques

#### Lesson 7: UNIX Processes

- What is a Process?
- Process Structure
- The ps Utility
- Options to the ps Utility
- Background Commands (&)
- Killing Background Processes
- Redirecting the Standard Error

#### Lesson 8: Getting Started

- What is a Shell?
- Running Scripts
- Specifying the Script's Interpreter
- The PATH Environment Variable
- Sub-shells

## Lesson 9: Variables

- Shell Variables
- The read Command
- The export Command
- The Shell Environment
- Variable Substitution
- Command Substitution

## Lesson 10: The Login Process

- The Login Process
- The System Profile Script
- Your .profile Script
- The .Command

## Lesson 11: Conditional Statements

- The Exit Status of Commands
- Command Line Examples
- The test Command
- The if-then-else Construct
- The elif Construct

- case Statements

## Lesson 12: Loops

- The for Loop
- The while Loop
- Reading Lines From Files
- Using Arrays with Loops

## Lesson 13: Quoting Mechanisms

- Single vs. Double Quotes
- What is a Here Document?
- Using a Here Document
- Here Document Quoting
- Ignoring Leading Tabs

## Lesson 14: Debugging Techniques

- Using echo
- Using Standard Error
- Options for Debugging
- Script Tracing
- Conditional Debugging