

# Comprehensive Introduction to UNIX/LINUX Commands

**Length:** Five Days

**Summary:** This CTES course is geared towards administrators or developers users who need to get started with the Unix or Linux Operating System. The course starts from the ground up, and quickly introduces participants to the command line. Topics include getting help, file and directory manipulation, I/O redirection, piping. After the student acquires comfort with the command line, they will explore regular expression with tools like grep and awk as well as automating task using shell scripting.

**Course Pre-requisite:** Working knowledge of Unix or Linux

**Target Audience:** Advance users interested in mastering the shell and automating task using the Unix or Linux operating system.

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## Course Content

### ESSENTIAL UNIX COMMANDS

- File and directory manipulation
- I/O redirection and pipes
- Writing shell startup files
- Using the shell command history

### FINDING UNIX DOCUMENTATION

- The man command
- Other manual page browsers

### UNIX REGULAR EXPRESSIONS

- The meta character set
- Building search patterns
- Developing extended regular expressions

### USING THE GREP COMMAND

- Processing files
- Processing command output

### THE CHARACTERISTICS OF A UNIX FILTER

- Reading from standard input

- Writing to standard output and standard error

### COMMON UNIX FILTERS

- Editing the output of commands with the stream editor sed
- Translating characters with tr
- Sorting files and command output
- Comparing different versions of files
- Using other common filters: cut, uniq tee
- Combining filters for complex text processing
- Executing filter commands with find

### RESTRUCTURING DATA WITH AWK

- Testing and extracting fields from structured input
  - Performing arithmetic calculations
  - Writing useful awk one-liners
  - Matching patterns with extended regular expressions
  - Modifying awk's default behavior with special patterns and built-in variables
  - Calling awk built-in functions
  - Using awk's control constructs for testing and looping
  - Storing data in arrays
  - Formatting output using printf
  - Searching files with multiline records
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## **SHELL BASICS**

- Writing simple shell scripts
- Storing data in shell variables
- Exporting variables to the environment
- Preventing the creation of a subshell environment

## **CONTROLLING LOGIC FLOW**

- Making decisions with if and case
- Quoting shell commands to avoid problems with variables
- Reading and testing standard input
- Looping with for and while
- Accessing the shell's built-in variables

## **OTHER SHELL FEATURES**

- About the Standard Input and Output Streams
  - Accepting command line arguments
  - Redirecting standard output
  - Substituting command output
  - Performing arithmetic in shell scripts
  - Scanning for command line options
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