Diploma in Unix (189) – SCO Unix Administration

Prerequisites: Knowledge in Unix operating system.	**Corequisites:** A pass or higher in Certificate in Unix Networking or equivalence.

Aim: This is another Unix operating system language in a series of System Administration courses covering the essential, routine maintenance activities that are associated with SCO systems. Designed for front-line System Administrators and key operators, this course provides a solid foundation in a range of daily responsibilities, from managing user accounts to tracking print requests on pre-installed systems. Tasks presented in this course are performed predominately through the SCO Admin menu interface. Candidates will finish this course with a comprehensive understanding of the first line duties associated with UNIX system, including managing user process, maintaining filesystems, backing up data, managing printers, and performing system startups and shutdowns. Learning these essential components of system administration will help administrators minimize downtime and improve the overall productivity of the organization. On completion of the course, candidates will be able to: Use the SCOAdmin (ADM) managers to administer SCO systems; Analyze user requirements and set system defaults for user accounts; Create and modify user accounts; Terminate processes running on the system; Mount and unmount a filesystem; Monitor free file space and directory usage; Transfer files to and from disks and tapes; Perform filesystem backups; Restore files; Restore an entire non-root filesystem; Manage printers and user print jobs.

Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.

Special Requirements: The course requires a combination of lectures, demonstrations, discussions, and hands-on labs.

Major Learning Outcomes:	Assessment Criteria:
Part I User Service Management	**Part I User Service Management**
1. Describe System Administrator responsibilities and role server administration.	1.1 Explore **Scoadmin** tool 1.2 Be able to search SCO documentation and online help 1.3 Analyse superuser account 1.4 Explore system log
2. Describe how user accounts is a core feature and demonstrate how to manage user accounts.	2.1 Be able to setup user accounts 2.2 Describe default login group 2.3 Describe Discretionary Access Control (DAC) 2.4 Analyse system environment files 2.5 Be able to create, remove and retire users
3. Describe Unix Process Management, how the Operating system functions executes within user process and modes of execution.	3.1 Identify the various states in a Unix process lifecycle 3.2 Analyse process commands 3.3 Be able to terminate a process 3.4 Outline job scheduling
4. Describe the hierarchical file system structure and demonstrate Superblock, Inodes and Data blocks.	4.1 Describe the directory file system 4.2 Outline disk filesystems 4.3 Describe filesystem device files 4.4 Define mount and unmounting 4.5 Be able to monitor file systems 4.6 Define system log and temporary files
5. Demonstrate how to add disk to Unix operating systems and explore how the volume system (media management) tools examines the layout of disks and other media.	5.1 Describe types of devices 5.2 Describe absolute and relative pathnames 5.3 Explore commands to archive and extract data
6. Demonstrate the full, differential backup	

process and how to automate the entire process.	6.1 Outline backup levels 6.2 Be able to manage backup schedules 6.3 Be able to restore backup data
7. Demonstrate how to install the Unix print services and how to set up print services on a UNIX Server.	7.1 Describe functions of print service 7.2 Explore how to start and stop print services 7.3 Be able to enable and disable printers 7.4 Outline printer troubleshooting commands
8. Demonstrate the System startup and shutdown processes.	8.1 Describe normal shutdown process 8.2 Describe system startup stages 8.3 Contrast single-user vs multiuser modes 8.4 Describe bootup hardware information
Part II System Installation, Configuration and Maintenance 9. Demonstrate how to create SCO files and directories and explore the rules for renaming files and directories.	**Part II System Installation, Configuration and Maintenance** 9.1 Describe the directories structure commands 9.2 Explore software storage objects 9.3 Outline filesystem types 9.4 Describe the UNIX disk structure
10. Demonstrate the installation and configuration of SCO Unix.	10.1 Describe disk space requirements 10.2 Be able to partition disks 10.3 Outline TCP/IP network configuration 10.4 Be able to troubleshoot installation problems 10.5 Be able to license the software
11. Demonstrate how UNIX interpret port and drive files and configure them.	11.1 Explore system ports 11.2 Be able to manage ports and terminals 11.3 Be able to configure drives
12. Describe how to secure a network system, the steps involved and UNIX system security tools	12.1 Describe security profile 12.2 Outline system administration delegation process 12.3 Explore the **root**, **asroot** and **su** commands 12.4 Be able to examine protection bits 12.5 Describe Trusted Computing Base
13. Describe tuning server performance and demonstrate performance analysis and performance tuning tool.	13.1 Be able to collect performance data 13.2 Describe kernel tables and parameters 13.3 Be able to identify and deal with performance issues
Part III Network Administration 14. Describe the responsibilities of network administrators in developing client/server applications in the TCP/IP domain.	**Part III Network Administration** 14.1 Describe hardware and IP addresses 14.2 Describe netmasks and broadcast addresses 14.3 Explore ARP protocol 14.4 Describe **/etc/services** and **/etc/hosts** files
15. Demonstrate how the "ifconfig" command allows the operating system to setup network and debug interfaces.	15.1 Explore the Network Configuration Manager tool 15.2 Be able to add a network adapter 15.3 Be able to use TCP/IP connectivity commands
16. Demonstrate ways routing is configured on a Unix host, how TCP/IP is implemented and monitored across the network.	16.1 Define subnetting

17. Describe the architectural overview of unix network WAN connectivity	16.2 Describe reasons for subnetting 16.3 Be able to configure a router 16.4 Explore IP routing mechanisms 16.5 Describe how routes are populated 17.1 Describe WAN interface types 17.2 Explore WAN protocols 17.3 Be able to configure PPP connections
18. Demonstrate how configure, administer and troubleshoot TCP/IP tools.	18.1 Describe the **/etc/tcp** file 18.2 Describe the **inetd** super daemon 18.3 Be able to configure trusted access
19. Demonstrate DNS Server Setup and Configuration in Unix and how Domain name services resolves names to the ip addresses of clients and vice verse.	19.1 Describe DNS operation 19.2 Outline DNS files and records 19.3 Be able to configure DNS server 19.4 Be able to query a name server 19.5 Be able to configure DNS clients
20. Demonstrate how to setup, configure the Internet service monitoring agent and setting the connection parameters.	20.1 Define virtual domains 20.2 Explore web services 20.3 Be able to configure FTP server 20.4 Describe time synchronisation
21. Describe the architecture and implementation of Network-Layer Security under Unix, securing protocols and Applications, Principles, mechanisms.	21.1 Define firewall 21.2 Describe packet filtering 21.3 Define proxy server 21.4 Discuss packet security issues
22. Demonstrate the procedure to configure e-mail options for SMTP on the UNIX system.	22.1 Outline email tools 22.2 Explore how to configure email 22.3 Be able to configure DNS for use with email 22.4 Be able to enable and disable client/server mail

Recommended Learning Resources: SCO Unix Administration

Text Books	• SCO UNIX Operating System: System Administrator's Guide by Santa Cruz Operation ISBN-10: 0130125687 • Essential SCO System Administration by Keith Vann ISBN-10: 013290859X • SCO Open Desktop/SCO Open Server User's Guide by Santa Cruz Operations ISBN-10: 0131068164
Study Manuals	BCE produced study packs
CD ROM	Power-point slides
Software	SCO Unix