Level 5 Diploma in Unix Networking (189) 149 Credits

Unit: Solaris Administration	**Guided Learning Hours:** 260
Exam Paper No.: 4	**Number of Credits:** 26
Prerequisites: Knowledge in Unix operating system commands.	**Corequisites:** A pass or higher in Certificate in Unix Networking or equivalence.
Aim: Solaris has always been the premier commercial Unix operating system, and this remains the case today. Most Oracle Database Systems sit on top of Solaris (not mentioning that Oracle bought Solaris in 2010), hence Solaris System Administration unit give learners advantages when looking for jobs, especially that most of major companies use Oracle database. Administering Solaris systems involves many standard tasks including; starting and shutting down a system, managing printers and performing regular backups. Learners taking this unit will gain the necessary knowledge and skills in performing the following tasks: accessing the Solaris operating system; boot procedures; startup and shutdown procedures; service management facility; installing the Solaris operating system; software package administration; maintenance of patches; connection services; disk management; file system management; Zfs; file security and access control lists; user management; backup and recovery; managing the print environment; managing processes.	
Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	

Intended Learning Outcomes:	Assessment Criteria:
1. The Solaris Administration tools; general system administration tasks and the functions of an Administrator.	1.1 Define and describe Solaris hardware classification 1.2 Describe system administration functions 1.3 Analyse Solaris system administration processes and procedures 1.4 Solaris hardware platforms; Solaris hardware interface layer for both 32bit and 64bit; characteristics and features 1.5 Examine Solaris operating system releases 1.6 Examine and explain Solaris disk geometry 1.7 Outline Solaris installation process
2. Installing and configuring Solaris, system configuration files and configuration of users and utilities.	2.1 Describe the Administration management tool 2.2 Describe how to add printers and terminals 2.3 Demonstrate how to add user accounts 2.4 Describe user groups 2.5 Demonstrate how to set **crontab** 2.6 Describe Solaris system security 2.7 Describe the step-by-step of automatic start up and shutdown process; system services and daemons 2.8 Describe Solaris booting process 2.9 Describe scripts used to start services 2.10 Outline terminal login command 2.11 Describe system shutdown process 2.12 Describe the power management utility
3. How to use the command line **useradd**	3.1 Describe ownership of files and

command and using the admintool application in graphical mode.		directories
	3.2	Define process ownership
	3.3	Describe process management utility
	3.4	Explain Solaris classes of users
	3.5	Describe the steps in creating a users
	3.6	Explain login monitoring commands
	3.7	Outline different tools used to create/add users
4. Solaris security-related, maintenance; troubleshooting tools; auditing, cryptographic services and management of public key technologies.	4.1	Describe commands for managing file system
	4.2	Define symbolic and hard links
	4.3	Describe files system protection mechanisms
	4.4	Demonstrate how to use file and directory access modes
	4.5	Define Access Control List (ACL)
	4.6	Explain Solaris file system structure
5. Solaris several standard groups and demonstrate how created groups and assign rights and privileges.	5.1	Describe the concept of groups and group ID
	5.2	Describe file/directory group identification
	5.3	Describe **chgrp** command
	5.4	Demonstrate how to use **Adminsuite** and **Admintool** utilities
6. Performing full system backup; data and system restore; creating full system backups using **ufsdump** command.	6.1	Explain the concepts and utility tools used to backup data
	6.2	Compare and contrast complete vs incremental backup
	6.3	Demonstrate how to perform backups over the network
	6.4	Describe data and system file restoration
	6.5	Describe differences between archive and backup
7. Creating and administering print servers client and troubleshooting printing problems.	7.1	Describe printer physical connection process
	7.2	Describe Solaris spooling
	7.3	Compare user and administrator printer commands
	7.4	Demonstrate how to add a local and remote printer
8. The process of formatting and dividing the disk into slices; disk addressing conventions, partitions and slices under Solaris.	8.1	Define slicing
	8.2	Demonstrate how to create a Solaris file system
	8.3	Describe mount command
	8.4	Describe the difference between slice and partition on Solaris
	8.5	Describe disk partitions and slices under Solaris
9. Configuring network and setup Solaris server to receive an IP Address from a DHCP server.	9.1	Describe Ethernet LAN operations
	9.2	Describe LAN network hardware requirements
	9.3	Describe network communication media
	9.4	Describe WAN equipment and requirements

	9.5	Describe the **/etc/hosts** file
	9.6	Describe the **DHCP** mechanism
	9.7	Define routing
	9.8	Examine network security commands
	9.9	Describe network services
	9.10	Demonstrate using network monitoring commands
10.　　Understand how NFS protocol provides transparent remote access to shared file systems across networks; Solaris naming services, how the Solaris operating environment provides the name services; setting up DNS Client configuration and Domain name services resolves names to the IP addresses.	10.1	Explain benefits and uses of NFS
	10.2	Identify NFS server configuration
	10.3	Describe the **share** command
	10.4	Define the **mount** command
	10.5	Describe naming services
	10.6	Describe DNS
	10.7	Describe Network Information System (NIS)
	10.8	Describe NIS+ terminology
	10.9	How Solaris for Intranets features an e-mail server and SKIP encryption software
	10.10	Demonstrate how to setup email
	10.11	Explain mail system configuration process
	10.12	Demonstrate how to configure browser
	10.13	Identify Web Server configuration process

Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Solaris Administration with a weighting of 100%.

Recommended Learning Resources:
Solaris Administration

Text Books	• Solaris (Operating System): Operating System UNIX, Microsystems, SPARC, DTrace, ZFS by Lambert M. Surhone, Miriam T. Timpledon and Susan F. Marseken ISBN-10: 6130511116 • Solaris Administration: A Beginner's Guide by Paul Watters ISBN-10: 0072131551 • Configuration and Capacity Planning for Solaris Servers by Brian L. Wong ISBN-10: 0133499529
Study Manuals	BCE produced study packs
CD ROM	Power-point slides
Software	Solaris