

SUBJECT: COMPUTER SCIENCE							
SEC-3	BCS-S504	Unix/ Linux Programming	L	T	P	C	Time for ESE
			2	-	-	2	3 Hrs.
Pre- requisite: Basic of Operating system							
Course Objectives: <ul style="list-style-type: none">To teach principles of operating system including File handling utilities, Security by file permissions, Process utilities, Disk utilities, Networking Commands, Basic Linux commands, Scripts and filters.To familiarize fundamentals of the Bourne again shell (bash), shell programming, pipes, input and output redirection Control structures, arithmetic in shell interrupt processing, functions, debugging shell scripts.							
Course Outcomes:							
CO1	Ability to use various Unix/ Linux commands that are used to manipulate system operations at admin level and a prerequisite to pursue job as a Network administrator.						
CO2	Ability to write Shell Programming using Unix/ Linux commands.						
CO3	Ability to design and write application to manipulate internal kernel level Unix/ Linux File System.						
CO4	Ability to write Shell Programming using Unix/ Linux commands.						
<u>Course Contents</u>							
UNIT	Contents						Lectures Required
1.	Introduction: What is LINUX/UNIX Operating systems, Difference between LINUX/UNIX and other operating systems □ Features and Architecture, Various Distributions available in the market Installation, Booting and shutdown process, System processes (an overview), External and internal commands, Creation of partitions in OS, Processes and its creation phases – Fork, Exec, wait.						6
2.	User Management and the File System: Types of Users, creating users, Granting rights; User management commands, File quota and various file systems available; File System Management and Layout, File permissions; Login process, Managing Disk Quotas; Links (hard links, symbolic links).						6
3.	Shell introduction and Shell Scripting: What is shell and various type of shell, Various editors present in Linux; Different modes of operation in vi editor; What is shell script, Writing and executing the shell script; Shell variable (user defined and system variables; System calls, Using system calls; Pipes and Filters; Decision making in Shell Scripts (If else, switch), Loops in shell; Functions; Utility programs (cut, paste, join, tr, unique utilities); Pattern matching utility (grep).						12
Total Lectures						24	
Suggested Text Book(s):							
1.	Sumitabha, Das, Unix Concepts and Applications, Tata McGraw-Hill Education.						

2.	Michael Jang RHCSA/ RHCE Red Hat Linux Certification: Exams (Ex200 & Ex300) (Certification Press).
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Suggested Reference Book(s):

1.	Nemeth Synder & Hein, Linux Administration Handbook, Pearson Education.
2.	W. Richard Stevens, Bill Fenner, Andrew M. Rudoff, Unix Network Programming, The Sockets Networking API.

Other Useful Resource(s)

1.	https://nptel.ac.in/courses/117106113
2.	http://www.nitttrc.edu.in/nptel/courses/video/117106113/L11.html

Course Outcomes Contributed to Programme Outcomes

PO→ CO↓	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	AVERAG E
CO1	1	2	1	3	2	3	2	2	2.0
CO2	1	3	2	3	2	3	2	2	2.3
CO3	1	3	2	3	2	3	3	3	2.5
CO4	2	3	3	3	2	3	3	3	2.8
AVG.	1.3	2.8	2.0	3.0	2.0	3.0	2.5	2.5	2.4

Course Outcomes Contributed to Programme Specific Outcomes

PSO→ CO↓	PSO1	PSO2	PSO3	AVERAGE
CO1	2	3	2	2.3
CO2	3	3	2	2.7
CO3	3	3	3	3.0
CO4	3	3	3	3.0
AVG.	2.8	3.0	2.5	2.7