Lovely Professional University, Punjab

Course Code	Course Title	Course Planner	Lectures	Tutorials	Practicals	Credits
CSE325	OPERATING SYSTEMS LABORATORY	20506::Navjot Kaur	0	0	2	1
Course Weightage	ATT: 5 CAP: 45 ETP: 50	**Exam Category: X6: Mid Term Exam: Not Applicable – End Term Exam: Practical**				
Course Orientation	SOFTWARE SKILL					

	TextBooks (T)		
Sr No	**Title**	**Author**	**Publisher Name**
T-1	BEGINING LINUX PROGRAMMING	NEIL MATHEW & RICHARD STONES	WILEY

	Reference Books (R)		
Sr No	**Title**	**Author**	**Publisher Name**
R-1	OPERATING SYSTEM CONCEPTS	ABRAHAM SILBERSCHATZ, GALVIN	WILEY
R-2	ADVANCED PROGRAMMING IN THE UNIX ENVIRONMENT	W.RICHARD STEVENS AND STEPHEN A. RAGO	PEARSON
R-3	OPERATING SYSTEMS A DESIGN-ORIENTED APPROACH	CHARLES CROWLEY	M.G.Hills

Other Reading (OR)	
Sr No	**Journals articles as Compulsary reading (specific articles, complete reference)**
OR-1	http://static.usenix.org/events/hotos11/tech/final_files/Kuz.pdf ,

Relevant Websites (RW)		
Sr No	**(Web address) (only if relevant to the course)**	**Salient Features**
RW-1	http://www.yolinux.com/TUTORIALS/LinuxTutorialPosixThreads.html	Thread Creation
RW-2	http://www.yolinux.com/TUTORIALS/LinuxTutorialRedHatInstallation.html	Linux installation
RW-3	http://nptel.ac.in/courses/106108101/pdf/Lecture_Notes/Mod%207_LN.pdf	Inter Process Communication

*Each experiment of the lab will be evaluated using following relative scheme:

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Component	Weightage (%)
Performance/Job evaluation/conduct/skill execution/demonstration	50
Viva	50

Detailed Plan For Practicals

Practical No	Broad topic	Subtopic	Other Readings	Learning Outcomes
Practical 1	Simulation of Shell commands using system calls	file/directory related system calls / library functions (read, write, open, close, lseek, opendir, readdir, closedir, etc)	OR-1 RW-2	Introduction to Linux. Student will be able to write programs that make use of system calls/ library functions
Practical 2	Simulation of Shell commands using system calls	file/directory related system calls / library functions (read, write, open, close, lseek, opendir, readdir, closedir, etc)	OR-1 RW-2	Introduction to Linux. Student will be able to write programs that make use of system calls/ library functions
Practical 3	Process creation and threading	Creating Threads	RW-1	Student learns to program in a multi-threading environment in order to utilize system resources optimally Practical 3: Evaluation 1 Practical 4: Programs to create threads
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Practical 5	Process creation and threading	Process duplication using fork		Student will be able to write programs that make use of multi processing environment
	Process creation and threading	Replacing process image using execlp		Student will be able to write programs that make use of multi processing environment
Practical 6	Synchronization	Synchronization with Mutexes		Student will be able solve synchronization problems Practical 6: Evaluation 2 Practical 7: Programs to implement mutex locks
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Practical 7	Synchronization	Synchronization with Mutexes		Student will be able solve synchronization problems Practical 6: Evaluation 2 Practical 7: Programs to implement mutex locks
Practical 8	Synchronization	Synchronization with semaphores		Student learns to implement solutions to synchronization problems
Practical 9	File allocation strategies	sequential file allocation, indexed file allocation, linked file allocation		Students will learn to simulate file allocation strategies.Practical 9: Evaluation 3 Practical 10: Program to implement sequential file allocation, indexed file allocation, linked file allocation
Practical 10	File allocation strategies	sequential file allocation, indexed file allocation, linked file allocation		Students will learn to simulate file allocation strategies.Practical 9: Evaluation 3 Practical 10: Program to implement sequential file allocation, indexed file allocation, linked file allocation
Practical 11	File allocation strategies	sequential file allocation, indexed file allocation, linked file allocation		Students will learn to simulate file allocation strategies.Practical 9: Evaluation 3 Practical 10: Program to implement sequential file allocation, indexed file allocation, linked file allocation
Practical 12	Inter-process communication	Stream pipes, passing file descriptors	RW-3	Student learns to create process that can share data with each other Practical 12: Evaluation 4 Practical 13: Programs to implement pipes
	Inter-process communication	Pipes, popen and pclose functions	RW-3	Student learns to create process that can share data with each other Practical 12: Evaluation 4 Practical 13: Programs to implement pipes
Practical 13	Inter-process communication	Pipes, popen and pclose functions	RW-3	Student learns to create process that can share data with each other Practical 12: Evaluation 4 Practical 13: Programs to implement pipes
	Inter-process communication	Stream pipes, passing file descriptors	RW-3	Student learns to create process that can share data with each other Practical 12: Evaluation 4 Practical 13: Programs to implement pipes
Practical 14	Inter-process communication	Message passing	RW-3	Student learns to create process that can share data with each other
	Inter-process communication	Shared memory	RW-3	Student learns to create process that can share data with each other
	SPILL OVER			
Practical 15	Spill Over			

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