DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Lesson Plan for the Academic year 2020-21

Faculty: Dr. M A Anusuya, Prof. Sheela N and Prof. Vani Ashok
Class & Section: IV Semester
Subject with Code: System Programming Lab (CS47L)

Pre-requisite: Theory of Computations, Data structure, Programming in C.

Week	Programs	Remarks
Complier Design: LEX Programs		
1	1. Count the number of vowels and consonants in a given string. 2. Create pattern to Recognize and develop a LEX program to count the number of i) Positive and Negative integers and ii) Positive and Negative Fractions.	
2	3. Write a LEX program to recognize a valid C program and also check for valid loop structure in it. 4. Recognize a valid Arithmetic expression and also Count number of operators present and print them separately.	
3	5. Write a LEX program to recognize and count the number of identifiers in a file. 6. Program to count the number of operators and operands in a given valid expression.	
Complier Design: YACC Programs		
4	1. Recognize a valid and Evaluate Arithmetic expression that uses operators +, -, *, /. 2. Recognize nested IF control statements and displays the number of levels of nesting in the nested IF.	
5	3. Design a YACC program to recognize the grammar $\{a^n b \setminus n>=0\}$. Verify the following string belongs to this grammar: (i) a (ii) ab (iii) aaab (iv) abb. 4. Recognize valid declaration and definition statement in C	
6	5. Develop C program to construct the top down parsing table for any grammar and also Parse the input generated by the grammar. 6. Develop C program to construct the any one bottom up parsing table for any grammar and also Parse the input generated by the grammar.	
Operating System:		
7	Shell Programming: a) Unix Commands b) Vi Commands c) Unix Shell programming commands	

	a) Concatenation of two strings b) Comparison of two strings c) Maximum of three numbers d) Fibonacci series e) Arithmetic operation using case	
8	System Calls a. Process Creation b. Executing a command c. Sleep command d. Sleep command using getpid e. Signal handling using kill **f.** Wait command	
9	I/O System Calls a) Reading from a file b) Writing into a file c) File Creation	
10	a)Implementation of ls command b)Implementation of grep command	
11	Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. Print average. waiting time and turnaround time.	
12	Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for Priority and Round robin. Print average. waiting time and turnaround time.	

Course Outcomes: After completion of course, the students are able to:

CO1:	Analyze unix commands, system calls, shell scripts
CO2:	Analyze and implement CPU Scheduling Algorithms.
CO3:	Apply the knowledge of regular expressions to recognize the tokens generated by the Lexical analyzer.
CO4:	Implement the LEX and YACC programs to recognize, validate and evaluate arithmetic Expressions and grammars.
CO5:	Design and Implement the various types of parsers for the given context free grammar

Text Books:

1. Alfred V Aho, Monica S. Lam, Ravi Sethi, Jeffrey D Ullman: Compilers-Principles, Techniques and Tools, 2nd Edition, Pearson education, 2014.
2. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating System Principles, 9th Edition, Wiley India, 2013
3. P.C.P. Bhatt: Introduction to Operating Systems: Concepts and Practice, 2nd Edition, PHI, 2008.
4. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating System Principles, 9th Edition, Wiley India, 2013

Signature of faculties

Signature of HOD