Lovely Professional University, Punjab

Course Code	Course Title	Course Planner	Lectures	Tutorials	Practicals	Credits
CSE215	DATA STRUCTURES AND ALGORITHMS LABORATORY	20260::Subhita	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	DATA STRUCTURES USING C	REEMA THAREJA	OXFORD UNIVERSITY PRESS

	Reference Books (R)		
Sr No	**Title**	**Author**	**Publisher Name**
R-1	DATA STRUCTURES,ALGORITHMS AND APPLICATIONS IN C++	SARTAJ SAHNI	UNIVERSITIES PRESS PVT. LTD

Other Reading (OR)	
Sr No	**Journals articles as Compulsary reading (specific articles, complete reference)**
OR-1	E-book: Data Structures and Algorithm Analysis in C Mark Allen Weiss at http://ebookbrowse.com/ ,

Relevant Websites (RW)		
Sr No	**(Web address) (only if relevant to the course)**	**Salient Features**
RW-1	http://www.nptel.iitm.ac.in/	Video lectures on data structures concepts
RW-2	http://www.cprogramming.com/algorithms-and-data-structures.html	Implementation of various data structures in C and C++
RW-3	http://www.cplusplus.com/doc/tutorial/structures/	Relavent C++ documentation for data structures

Software/Equipments/Databases		
Sr No	**(S/E/D) (only if relevant to the course)**	**Salient Features**
SW-1	C/C++ Compiler and IDE	Efficient implementation of various data structures involving the use of pointers

Virtual Labs (VL)		
Sr No	**(VL) (only if relevant to the course)**	**Salient Features**
VL-1	http://www.csse.monash.edu.au/~dwa/Animations/index.html	Animations of algorithms in data structure
VL-2	http://cse.iitkgp.ac.in/~rkumar/pds-vlab/	Work space for lab work and simulations

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

Component	% of Marks
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	Basics	Pointers and records		Ability to identify the scenario where arrays are preferred to be used as basic data structure
	Basics	Array of structures and pointers	RW-1	Ability to identify the scenario where arrays are preferred to be used as basic data structure
Practical 2	Arrays	Linear Search and Binary Search		Ability to identify the scenario where arrays are preferred to be used as basic data structure
	Arrays	Insertion	OR-1 RW-1 RW-2 RW-3 SW-1 VL-1 VL-2	Ability to identify the scenario where arrays are preferred to be used as basic data structure
	Arrays	Dynamic creation of arrays		Ability to identify the scenario where arrays are preferred to be used as basic data structure
	Arrays	Deletion		Ability to identify the scenario where arrays are preferred to be used as basic data structure
Practical 3	Arrays	Bubble sort		Evaluation
Practical 4	Searching and Sorting techniques	Implementation of all searching and sorting techniques		Usage of appropriate technique at appropriate place
Practical 5	Linked Lists	Deletion		Recognition of difference between applications of arrays and linked list
	Linked Lists	Traversal		Recognition of difference between applications of arrays and linked list
	Linked Lists	Insertion		Recognition of difference between applications of arrays and linked list

Practical 6	Linked Lists	Header linked list		Evaluation
Practical 7	Linked Lists	Circular linked list		Efficient implementation of linear data structure and management of linked list
	Linked Lists	Two-way lists		Efficient implementation of linear data structure and management of linked list
Practical 8	Stacks and Queues	Traversal		Ability to modify the design of basic linear data structure as per the requirement of application
	Stacks and Queues	Insertion		Ability to modify the design of basic linear data structure as per the requirement of application
	Stacks and Queues	Deletion		Ability to modify the design of basic linear data structure as per the requirement of application
Practical 9	Stacks and Queues	Tower of Hanoi		Evaluation
Practical 10	Trees	BST insertion		Identification of scenarios where data will be put in non linear hierarchical fashion
	Trees	BST creation		Identification of scenarios where data will be put in non linear hierarchical fashion
Practical 11	Trees	BST creation		Identification of scenarios where data will be put in non linear hierarchical fashion
	Trees	BST insertion		Identification of scenarios where data will be put in non linear hierarchical fashion
Practical 12	Trees	Heap insertion		Evaluation
Practical 13	Trees	Heap deletion		Understanding of significance of complexity issues
	Trees	Heap sort		Understanding of significance of complexity issues
Practical 14	Trees	Heap sort		Understanding of significance of complexity issues
	Trees	Heap deletion		Understanding of significance of complexity issues
	SPILL OVER			
Practical 15	Spill Over			