SARDAR PATEL UNIVERSITY
Programme: B.Sc (Information Technology)
Semester: V
Syllabus with effect from: June - 2013

Paper Code: US05CINT02	Total Credit: 3
Title of Paper: Data & File Structure	

Unit	Description in detail	Weightage (%)
I	Introduction to Data Structure Introduction to Data Structure. Importance, Meaning, Applications of Data Structure. Characteristics of algorithm for data Structure. Operation on Data Structure : Creation, Selection, Updation, Destroy. Data Types: Primitive and Composite. Definition, Hierarchical structure with example. Primitive v/s non- primitive data types. Introduction to Linear and Non Linear data structure. Definition, One, Two Dimensional Array. N-dimensional array for (row major), Address finding equations, Applications of Arrays. Stack : Definition, Operations on Stack (Push, Pop, Peep, Change). Queues. Operations on queue (insert, delete). Circular queue (insert, delete)	25%
II	**Queues, Linked List and Trees.** Concepts of single Linked List. Single Linked list: insert Single Linked list: delete Concepts of Doubley Linked List Doubley Linked List: insert. Doubley Linked List: delete. Introduction to trees. Definitions of basic terms : Tree, Directed Tree, Root, Leaf, Branch, Level, Node. Binary trees : Introduction, linear and linked representations. Preorder, inorder and postorder traversal of a binary tree. Insertions and deletions in a lexically ordered binary tree	25%
III	**Sorting and Searching.** Introduction to sorting, applications of sorting. Basic sorting techniques - bubble sort, selection sort and merge sort and Implementation of sorting techniques. Introduction to searching, applications of searching. Basic sorting techniques - sequential search and binary search and Implementation of searching techniques.	25%
IV	**File Organization.** Terminology, definitions and concepts in file organization. The structure of sequential files. Processing sequential files. Direct files, Processing direct files. Indexed sequential files.	25%

The structure of indexed sequential files. Processing indexed sequential files.	

Basic Text & Reference Books:

- Tremblay J. & Sorenson P. G. : An Introduction to Data Structures with Applications, 2nd Edition, McGraw-Hill International Edition, 1987.
- Singh Bhagat & Naps Thomas : Introduction to Data Structures, Tata McGraw-Hill Publishing Co. Ltd.,1985.