SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc – Information Technology (Integrated)
Semester: III
Syllabus with Effect from: June-2013

Paper Code: PS03CIIT02	Total Credit: 3
Title Of Paper: Advanced Data And File Structure	

Unit	Description in detail	Weightage (%)
I	**Arrays and Trees** Introduction to arrays, one and two-dimensional arrays Representation of arrays in memory : row-major and column-major order Address calculation of elements of one and two-dimensional arrays Sparse array, applications of arrays Introduction to trees Definitions of basic terms : Tree, Directed Tree, Root, Leaf, Branch, Level, Node Applications of a tree	25%
II	**Binary Trees and Graphs** 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 The concept of a graph and basic terminology	25%
III	**Sorting & Searching** Introduction to sorting, applications of sorting Basic sorting techniques - bubble sort, insertion sort, quick sort, selection sort and merge sort Implementation of sorting techniques Introduction to searching, applications of searching Basic searching techniques - sequential search and binary search Implementation of searching techniques Sorting vs. searching	25%
IV	**File Organizations** Terminology, definitions and concepts in file organization The structure of sequential files Processing sequential files Direct files, Processing direct files Indexed sequential files The structure of indexed sequential files Processing indexed sequential files	25%

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.
➢ R. B. Patel: Data Structure using C – Khanna Publications. ISBN: 81-87522-41-0

Additional Reference Books :

➢ D. Samantha : Classis Data Structures – PHI Publication
➢ G. S. Baluja : Data Structures through C 4th Edition – Danpat Rai & Co.