**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**
**M.Sc. (I.T.) [Five Year Integrated Course]**
**B.Sc. (Information Technology**
**Semester III**

**Effective from July 2004**

**Paper No : 301** **L: 4, T:0, P:0 Hrs**
**Paper Title: Data Structures**

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**1. Primitive Data Structures**
**2.**
**3. Non-Primitive Data structures.**
Arrays - its storage structures & operations
Stacks - operations and its applications in Recursion, Polish expressions.
Queues - Types of queues, operations and its applications.
Linked lists - Types of linked list, operations and its applications.
Trees - Concept and Definitions, Operations, linked & threaded storage representation of Binary Trees.
Applications of Trees - The manipulation of Arithmetic expressions, Symbol-table construction, Syntax Analysis.

**4. Sorting Techniques.**
Insertion Sort, Selection Sort, Merge Sort, Radix Sort, Bubble Sort, Heap Sort

**5. Searching Techniques**
Sequential, Binary

**Main Readings:**
1. An Introduction to Data Structures with applications - Trembley - McGraw Hill
2. Theory and problems of data structures – Seymour Lipschutz – McGraw Hill

**Supplementary Readings:**
1. Algorithms + Data Structure Programs - Wirth, Niclaus - PHI.
2. Fundamentals of Data Structures, Horwitz, E. and Sahni S. – CS Press
3. The Art of Computer Programming, Vols. 1-2, Knuth D. - Addision-Wessley.
4. Schaum's outline of Data Structures with C++, John R. H. - TMH
5. Data Structures through C – Yeshwant Kanetkar - BPB