

Data Structures

(Using C)

- ADT
- Linear Data Structure
 - List
 - Stack
 - Queue
- Sorting
- Searching

(Using C++)

- Non Linear Data Structure
 - AVL tree
 - Red Black tree
 - Splay tree
 - Binomial Heap
 - Fibonacci Heap
 - Breadth first search, Depth first search
 - Topological sort
 - Minimum spanning Tree
 - Shortest path algorithm

DBMS

- INTRODUCTION TO DBMS
 - Data models
 - Relational Algebra
 - Entity-Relationship model
- SQL & QUERY OPTIMIZATION
 - DDL-DML-DCL-TCL Commands
 - Query Processing and Optimization
- TRANSACTION PROCESSING AND CONCURRENCY CONTROL
- DATABASE SECURITY
- Data Warehousing and Mining

Operating System

- OPERATING SYSTEMS OVERVIEW
 - Scheduling
 - Interprocess Communication
 - Threads
 - Deadlocks
 - Process Synchronization
- STORAGE MANAGEMENT
 - Memory Allocation
 - Segmentation
 - Demand Paging
- I/O SYSTEMS
 - Disk Scheduling and Management
 - File System Storage

Computer Architecture

- Components of a computer system
- Addressing modes
- Pipelining
 - Handling Data hazards & Control hazards
- Instruction-level-parallelism
- Memory system
 - Cache memory
 - Virtual memory
- Input/output system
 - Programmed I/O
 - DMA
 - Interrupt

Computer Networks

- Building a network
- Error Detection
- Flow control
- Wireless LANs
 - 802.11
 - Bluetooth
 - Basic Internetworking
- ROUTING
- TRANSPORT LAYER
 - UDP
 - TCP
- APPLICATION LAYER
 - Electronic Mail
 - HTTP
 - DNS
 - SNMP

Theory of Computation

- FINITE AUTOMATA
 - NFA and DFA
- GRAMMARS
 - Context Free Grammars and Languages
- PUSHDOWN AUTOMATA
- TURING MACHINES
- UNSOLVABLE PROBLEMS AND COMPUTABLE FUNCTIONS
 - MEASURING AND CLASSIFYING COMPLEXITY

Compiler Design

- Phases of Compiler
- Compiler Construction Tools
- LEXICAL ANALYSIS
 - Expressing Tokens by Regular Expressions
 - Converting Regular Expression to DFA
- SYNTAX ANALYSIS

- Top Down Parsing
- Recursive Descent Parser Predictive Parser
- CODE OPTIMIZATION AND CODE GENERATION

Programming

- C – Arrays, functions, pointers, Structure and Union, Files
- C++ -Object oriented basic concepts, Exception handling, Templates, File handling

Internet and Java Programming

- JAVA PROGRAMMING
- WEBSITES BASICS
- HTML and CSS
- CLIENT SIDE AND SERVER SIDE PROGRAMMING
 - Java Script
 - Servlets
- JSP
- PHP and XML
- INTRODUCTION TO AJAX and WEB SERVICES