PROGRAM: PG DIP IN INFORMATION TECHNOLOGY  
COURSE: COMPUTER STRUCTURE ALGORITHM  
COURSE CODE: 3050101

Chapter 1  
Introduction - Linear Data Structure – Arrays

Chapter 2  
Lists - Stacks - Queues - Linked Lists – Implementation - Applications

Chapter 3  
Trees - General and Binary trees – Representation

Chapter 4  
Traversals – Threaded Binary Trees - Search trees - Balanced trees

Chapter 5  
Sorting - Insertion sort - Quick sort - Merge sort – Iterative Merge Sort – Recursive Merge Sort

Chapter 6  
Simple Merge Sort - Heap sort - Sorting on several keys - External sorting

Chapter 7  
Graphs Representation - Traversal - Topological tables and files

Chapter 8  
Sorting - Applications - Representation - Marking techniques

Chapter 9  
Files - Sequential - Index sequential

Chapter 10  
Random Access organization – Implementation

Chapter 11  
Algorithms - Time and Space complexity – Sorting

Chapter 12  
Chapter 1
Gates – uses and application

Chapter 2
Integrated circuits – TTL and MOS logic circuits – Gating Networks Logic design - Flip – Flops – Transforms circuits – Clocks – Shift registers – Counters

Chapter 3
State Diagrams and State Tables – Magnitude Comparator – Programmable Arrays of Logic Cells

Chapter 4
Elements of ALU - Design and Implementation of Binary Address (Half and Full) and Subtractors – BCD Adder

Chapter 5
Multiplier – Demultiplexer – Encoder

Chapter 6
Floating Point Number Systems – Arithmetic Operations with Floating point Numbers

Chapter 7

Chapter 8
Memory Organization - Memory Hierarchy – Main memory – Auxiliary Memory – Associative memory – Cache memory – Virtual Memory

Chapter 9
Microcomputers - Microprocessor and Assembly Language – Microprocessor Architecture and Microcomputer Systems

Chapter 10

Chapter 11
The 8085 programming Model – Addressing Techniques

Chapter 12
8085 Instruction – Code Conversion – BCD Arithmetic Operations
Chapter 1
From problems to problems

Chapter 2
Abstract Data Types - Data Types - Structure and Abstract types

Chapter 3
Running time of a Program - Calculating the running time of a Program – Efficiency of Algorithms

Chapter 4
Analysis of Recursive Programs – Solving Recurrence Equations – A general solution for a Large Class of Recurrences

Chapter 5
Divide and Conquer Algorithms

Chapter 6
Dynamic Programming – Greedy Algorithms – Back Tracking – Local Search Algorithms

Chapter 7
Models of Computation – Random Access Machines – A stored Program Model – Abstraction of the RAM – The Turing Machine Model – Relationship between the Turing machines and RAM Modules

Chapter 8
NP Complete Problems - Non Deterministic Turing Machines – The Classes P and NP – Languages and Problems – NP – Completeness of the Satisfying Problem

Chapter 9
Parallel Computation Models – SISD - MISD and MIMD Computers

Chapter 10
Analyzing Algorithms – Running Time – Number of Processors - Cost and other Measures

Chapter 11
Parallel Selection and Merging - Selection Problem and Lower Bound

Chapter 12
Sequential and Parallel Algorithms for selection – Merging Network – Merging on CREW and EREW Model
Chapter: 01
The Importance of software – Evolving of Software Information – Generation of computers – computers Organization Applications – Programming

Chapter: 02
Software characteristics – Software Components – Software Applications – software Crisis – Problems and Causes

Chapter: 03
Memory - Random Access Memories – Memory Organization, Memory Operations Static and Dynamic RAM – EPROM memories

Chapter: 04
Mass Storage – Hard Disk, floppy Disk, CD-ROM.

Chapter: 05
I/O Devices - Keyboard – Mouse Touch Screen – Optical character Recognition – Voice Recognition

Chapter: 06
Monitor – Printer – Connecting I/O devices to the Computer.

Chapter: 07
Computers in Business - Types of Business Information – The value and cost of Information

Chapter: 08
Ways in which Computers are used - Storage, Organizing, Searching of Information

Chapter: 09
Flexible system for the user: Client / Server computing, Collaborating computing, Collaboration with the help of Internet

Chapter: 10
Information system: The Information System department types of Information system – The Systems development Life Cycles

Chapter: 11
Creating Computer Programs - Computer Program – Structured and object oriented programming

Chapter: 12
Evaluation of Programming Languages – High Level Languages – The process of Programming – Special Purpose programming Tools
Chapter 1
Internet – origin and development - Internet connection concepts – Intranets - Connecting LANs to the Internet

Chapter 2
Electronic mail message - E-Mail Concepts – E-Mail security - Reasons to secure the Messages - Public key cryptography - Using cryptography with E-Mail

Chapter 3
Communication through online - Online Chatting and Conferencing Concepts – WWW concepts

Chapter 4
Fundamentals of Object Oriented Programming

Chapter 5
Java evolution – Overview of JAVA Language

Chapter 6
Constants - Variables and Data types - Operators and Expressions – Decision Making - Branching and Looping

Chapter 7
Classes - Objects and Methods – constructors – multiple constructors

Chapter 8
Arrays - Strings and Vectors – Multiple inheritance

Chapter 9
Packages – creating and importing of packages - Multithreaded Programming

Chapter 10
Managing Errors and Exceptions

Chapter 11
Applet programming – applet construction – applet tags in HTML – parameter tags – applet life cycle

Chapter 12
Graphics Programming – Managing Input / Output files
Chapter: 01
HTML Programming using tags - Simple Web Page

Chapter: 02
HTML Programming using tags - Hyper Linked Web page, <^> <^\>

Chapter: 03
HTML Programming using tags - Web Page with Image <IMG SRC =””>

Chapter: 04
HTML Programming using tags - Web Page with applet <Applet>

Chapter: 05
HTML Programming using tags - Web Page with table <TB>

Chapter: 06
Java Programs - Program to create a simple applet and application

Chapter: 07
Using Java classes and Objects

Chapter: 08
Using Java Inheritance and Interface

Chapter: 09
Using Arrays in Java

Chapter: 10
Using Exceptions

Chapter: 11
Using Threads and Multithreads

Chapter: 12
Using AWT Package - Using I/O Package