## M.C.A. (MASTER OF COMPUTER APPLICATIONS)
### 1 SEMESTER (FULL TIME) CURRICULUM AND SYLLABI

**SEMESTER I**

<table>
<thead>
<tr>
<th>SL. NO</th>
<th>COURSE CODE</th>
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<tbody>
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</table>
UNIT I  DIGITAL FUNDAMENTALS  8

UNIT II  COMBINATIONAL AND SEQUENTIAL CIRCUITS  10

UNIT III  BASIC STRUCTURE OF COMPUTERS  9

UNIT IV  PROCESSOR DESIGN  9
Processor basics – CPU Organization – Data path design – Control design – Basic concepts – Hard wired control – Micro programmed control – Pipeline control – Hazards – Super scalar operation.

UNIT V  MEMORY AND I/O SYSTEM  9

TOTAL : 45 PERIODS

TEXT BOOKS:

REFERENCES:
MC9212 PROBLEM SOLVING AND PROGRAMMING L T P C 3 0 0 3

UNIT I  INTRODUCTION TO PROGRAMMING  9  
Introduction to computing – building blocks for simple programs – problem to program – 
Decision structures – loop structures – problem analysis – programming style – 
documentation and testing.

UNIT II  PROGRAMMING PARADIGMS  9  

UNIT III  PROBLEM SOLVING TECHNIQUES  9  
Programming life cycle phases – problem solving – implementation – maintenance – 
pseudo code representation – flow charts - algorithms – algorithmic efficiency – 
complexity of algorithms.

UNIT IV  C PROGRAMMING FUNDAMENTALS  9  
Structured program development – Data types – operators – expressions – control flow – 
arrays and pointers – functions – Input – output statements – storage classes.

UNIT V  ADVANCED FEATURES  9  
processing – fundamental data structures.

TOTAL : 45 PERIODS

REFERENCES:
publishers, 2002.

MC9213 DATABASE MANAGEMENT SYSTEMS L T P C 3 0 0 3

UNIT I  INTRODUCTION  9  
Historical perspective - Files versus database systems - Architecture - E-R model - 
Security and Integrity - Data models.

UNIT II  RELATIONAL MODEL  9  
The relation - Keys - Constraints - Relational algebra and Calculus - Queries - 
Programming and triggers

UNIT III  DATA STORAGE  9  
Disks and Files - file organizations - Indexing - Tree structured indexing - Hash Based 
indexing
UNIT IV  QUERY EVALUATION AND DATABASE DESIGN  9
External sorting - Query evaluation - Query optimization - Schema refinement and normalization - Physical database design and tuning - Security

UNIT V  TRANSACTION MANAGEMENT  9
Transaction concepts - Concurrency control - Crash recovery - Decision support - Case studies

TOTAL : 45 PERIODS

REFERENCES:

MC9214  DATA STRUCTURES  L T P C
3 1 0 4

UNIT I  DATA STRUCTURES  9

UNIT II  TREES  9
Binary Trees – Operations on binary trees - Binary Tree Representations – node representation, internal and external nodes, implicit array representation – Binary tree Traversals - Huffman Algorithm – Representing Lists as Binary Trees

UNIT III  SORTING AND SEARCHING  9

UNIT IV  GRAPHS AND THEIR APPLICATIONS  9

UNIT V  STORAGE MANAGEMENT  9
General Lists: Operations, linked list representation, using lists, Freeing list nodes - Automatic list Management: Reference count method, Garbage Collection, Algorithms, Collection and compaction

L : 45 T : 15 TOTAL : 60 PERIODS
MC9215 ACCOUNTING AND FINANCIAL MANAGEMENT

UNIT I FINANCIAL ACCOUNTING
9

UNIT II ACCOUNTING
9

UNIT III BUDGETS AND BUDGETING CONTROL
9
Budgets and Budgetary Control-Meaning-Types-Sales Budget-Production Budget-Cost of Production Budget-Flexible Budgeting-Cash Budget-Master Budget-Zero Base Budgeting-Computerized Accounting

UNIT IV INVESTMENT DECISION AND COST OF CAPITAL
9

UNIT V FINANCING DECISION AND WORKING CAPITAL MANAGEMENT
9

L : 45 T : 15 TOTAL : 60 PERIODS

TEXTBOOKS:

REFERENCES:
1. S.P.Iyengar, “Cost and Management Accounting”, Sultan Chand & Co,
MC9217 PROGRAMMING AND DATA STRUCTURES LAB  

1. Stack and Queue  
2. Binary tree Traversals  
3. Merge Sort  
4. DFS and BFS  
5. Warshall’s Algorithm  
6. Dijkstra’s Algorithm  
7. Huffman’s Algorithm  
8. Insertion Sort  

TOTAL : 45 PERIODS

MC9218 DBMS LAB

1. Creation of base tables and views.  
2. Data Manipulation  
   INSERT, DELETE and UPDATE in tables  
   SELECT, Sub Queries and JOIN  
3. Data Control Commands  
4. High level language extensions – PL/SQL. Or Transact SQL  
5. Use of Cursors, Procedures and Functions  
6. Embedded SQL or Database Connectivity.  
7. Oracle or SQL Server Triggers.  
8. Working with Forms, Menus and Reports.  

TOTAL : 45 PERIODS