

## **MCA FIRST YEAR SECOND SEMESTER CURRICULUM**

CM 651

### **ACCOUNTING AND FINANCIAL MANAGEMENT**

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

#### **UNIT -I**

An overview of Accounting cycle -Basic concepts and conventions -Books of Account - Terminal statement.

#### **UNIT- II**

Financial statement analysis and interpretation -Ratio analysis.

#### **UNIT -III**

Working capital -Sources and uses -Funds flow and cash flow analysis -Management of Inventory.

#### **UNIT- IV**

Capital Budgeting -Techniques for evaluation -Cost of capital -Computation of specific costs, and weighted average cost of capital

#### **UNIT -V**

Analysis of costs and their behaviour -Cost volume -Profit analysis Variable costing and absorption costing.

Budgets- Flexible Budgeting -Long and Short term forecasting.

#### **Suggested Reading:**

- 1) James. C. Van Horne, "Fundamentals of Financial Management", Pearson edition, Eleventh edition, 200 I.
- 2) Khan MY, Iain PK, "Financial Management", Tata McGraw Hill, Second Edition, 1993.
- 3) Maheswari SN, "Management Accounting and Financial Control", Sultan Chand &Co.
- 4) Gupta G, Radhaswamy M, "Advanced Accountancy", Sultan Chand,& Sons.

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## COMPUTER ORGANISATION

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional.	20 Marks

### UNIT -I:

Digital Logic Circuits: Digital Computers, Logic Gates, Boolean Algebra, Map Simplification, Combinational Circuits, Flip Flops, Sequential Circuits.

Digital Components: Integrated Circuits, Decoder, Multiplexers, Registers, Shift Registers, Binary counter, Memory unit.  
Data Representation: Data types, Complements, Fixed and Floating Point Representation, Other binary codes and error Detection codes.

### UNIT -II

Register Transfer and Micro operations: Register Transfer language, Register transfer, Bus and Memory Transfer, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations and Arithmetic logic shift unit.  
Basic Computer Organization and Design: Instruction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycles, Memory Reference Instructions, Input, Output and Interrupts, Design of Accumulator logic.

### UNIT -III

Programming the Basic Computer: Introduction, Machine Language, Assembly Language, The Assembler, Programming Arithmetic and Logic Operations, Subroutines, and input-output Programming.  
Micro programmed Control: Control Memory, Address Sequencing, Micro program Example, Design of Control Unit.

### UNIT -IV

Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, RISC.  
Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline.  
Computer Arithmetic: Addition and Subtraction, Multiplication algorithms, Division Algorithms, Floating point arithmetic operations, decimal arithmetic unit, and decimal arithmetic operations.

### UNIT -V

Input-Output organization: Peripheral Devices, I/O output interface, Asynchronous data transfer, Modes of transfer, Priority Interrupt, DMA, Input output Processor, Serial Communication.  
Memory Organization: Memory Hierarchy, Main Memory, Cache Memory.

**Suggested Reading:**

- 1) M. Morris Mano, "Computer System Architecture", Pearson Asia / Prentice Hall, Third edition, 1993.
- 2) Sivarama P Dandamudi "Fundamentals of Computer Organization and Design" , Springer/ Dream tech Publishers, 2003.
- 3) William Stallings, "Computer Organization & Architecture", Pearson Education, Sixth : Edition, 2003,

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**DA T A STRUCTURES USING C++**

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

**UNIT -I**

Data Representation: Introduction, linear lists; Formula based representation, indirect addressing, simulating pointers, comparisons and applications.

**UNIT -II**

Arrays, matrices, special and sparse matrices.

Stacks: Definitions, operations and applications, array and linked representation of stacks.

Queues: Definitions and operations. Array and linked representation of queues and their applications.

**UNIT- III**

Trees: Definitions and properties, representation of binary trees, operations. Binary tree traversal. A VL tress and operations on A VL trees.

**UNIT -IV**

Sorting: Merge sort, Selection sort, heap sort, Complexity analysis, Sequential search, binary search. Various types of hashing. "

**UNIT -V**

Graphs: Definitions and representation of graphs. graphs search methods.

Applications. B-trees, Operations on B-trees. Applications.

**Suggested Reading:**

- 1) S Sahani, "Data Structures, Algorithms and Applications in C++" Second Edition , University Press, 2005.
- 2) D S Malik " Data Structures using C++", Thomson Learning, 2003.

3) Cormen Leiserson & Rivest, "Introduction to Algorithms", Prentice Hall India, 1996.

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## OBJECT ORIENTED PROGRAMMING USING JAVA

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

### UNIT -I

Object Oriented System Development: Understanding Object Oriented Development, Understanding Object Oriented Concepts, Benefits of Object Oriented Development. Java Programming Fundamentals: Introduction, Overview. of Java, Data types, Variables and Arrays, Operators, Control Statements, Classes, Methods, Inheritance, Packages and Interfaces..

### UNIT -II

Exceptional Handling, Multithreaded Programming, 110 basics, Reading console input and output, Reading and Writing Files, Print Writer Class, String Handling.

### UNIT -III

Exploring java.lang, Collections Overview, Collections Interfaces, Collection Classes, Iterators, Random Access Interface, Maps, Comparators, Arrays, Legacy classes and Interfaces, String Tokenizer Bit Set, Date, Calendar observable, timer.

### UNIT IV

Java I/O classes and Interfaces, Files, Stream and Byte Classes, Character Streams, Serialization.

### UNIT -V

GUI and Event Driven Programming: Applet Class, Event Handling, Delegation event model, event classes, event listener Interfaces. Customizing Frame Windows, GUI Programming Basics, Text Related GUI Components, Layout Managers, Effective use of Nested panels, Other GUI components, Menus and Handling Mouse Events.

### Suggested reading:

1) Patrick Naughton " JAVA 2, The Complete Reference " Tata McGraw Hill 2005.

- 2) James M Slack " Programming and Problem Solving with JA V A " Thomson Learning 2000.
- 3) C Thomas Wu " An Introduction to Object Oriented Programming with Java" Tata Mc Graw Hill ,2005

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**PROGRAMMING LAB –IV**  
**(DATA STRUCTURES IN C++)**

1. Implementation of Stack, Queues.
2. Infix to Postfix conversion, evaluation of postfix expression.
3. Polynomial arithmetic using linked lists.
4. Implementation of binary search and hashing
5. Implementation of selection, shell merge and quick sorts.
6. Implementation of traversal on binary trees.
7. Implementation of heap sort.
8. Implementation of operations of A VL Trees.
9. Implementation of Traversal on Graph.
10. Implementation of B- Tree.

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**PROGRAMMING LAB -III (Java Programming)**

1. A program to illustrate the concept of class with constructors, methods and overloading.
2. A program to illustrate the concept. of inheritance and dynamic polymorphism
3. A program to illustrate the usage of abstract class. ~
4. A program to illustrate multithreading.
5. A program to illustrate thread synchronization.
6. A program using StringTokenizer .
7. A program using Linkedlist class
8. A program using TreeSet class
9. A program using Hash Set and Iterator classes.
10. A program using Map classes.
11. A program using Enumeration and Comparator interfaces.
12. A program to illustrate the usage of Filter and Buffered I/O streams
13. A program to illustrate the usage of Serialization

14. An application involving GUI with different controls, menus and event handling.
15. A program to implement an applet.