

SCHEME OF INSTRUCTION & EXAMINATION**MCA I YEAR****Faculty of Information Technology****With Effect from Academic Year 2006-2007****SEMESTER- II**

S. No.	Syllabus Ref. No.	SUBJECT	Scheme of Instruction		Scheme of Examination		
			Periods per week		Duration In Hours	Maximum Marks	
			L/T	D/P		Univ, Exam	Sessionals
THEORY							
1	CS651	Accounting and Financial Management	4	-	3	80	20
2	CS652	Object-Oriented Programming Using Java	4	-	3	80	20
3	CS653	Management Information Systems	4	-	3	80	20
4	CS654	Data Structures Using C++	4	-	3	80	20
5	CS655	Computer Organization	4	-	3	80	20
PRACTICALS							
1	CS631	Programming Lab-III(Java Programming)	-	3	3	50	25
2	CS632	Programming Lab-IV(Data Structures in C++)		3	3	50	25
	Total		20	6		500	150

ACCOUNTING AND FINANCIAL MANAGEMENT

CM 651

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 Readings:

- 1) James. C. Van Horne, "Fundamentals of Financial Management", Pearson edition, Eleventh edition, 2001.
- 2) Khan MY, Jain 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.

OBJECT ORIENTED PROGRAMMING USING JAVA

CS 652

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

Exception Handling: Multithreaded Programming, I/O Basics, Reading console input and output, Reading and Writing Files, Print Writer Class, String Handling.

UNIT -III

Exploring java.lang, Collections Overview, Collections Interfaces, Collections 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 Readings:

- 1) Patrick Naughton, "JAVA 2, The Complete Reference", Tata McGraw Hill 2005.
- 2) James M. Slack, "Programming and Problem Solving with JAVA", Thomson Learning 2000.
- 3) C Thomas Wu, "An Introduction to Object Oriented Programming with Java", Tata McGraw Hill, 2005

MANAGEMENT INFORMATION SYSTEMS

CS 653

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

UNIT I

An Introduction to Concepts of Systems and Organizations, Strategic Uses of Information Technology, Business Process in Engineering and Information Technology

UNIT II

Applications to Operational Information Systems to Business, Tactical and Strategic Information System to Business

UNIT III

Information Systems Planning, Approach to Systems Building, Alternative Application Development

UNIT IV

Managing Knowledge, Knowledge Management in the Organization, Enhancing Management Decision Making, DSS, GDSS, ESS

UNIT V

Management of Information Systems, Information Systems Security and Control, Ethical Issues, Managing Firm Infrastructure and Enterprise System

Suggested Readings:

1. Robert Schultheis, Mary Sumner, "Management Information Systems – The Manager's View", Tata McGraw Hill, Fourth Edition, 1998.
2. Kenneth C Laudon, Jane P Laudon "Management Information Systems", Prentice Hall, 2000.
3. James A. O'Brien, "Management Information Systems", Tata McGraw Hill, Sixth Edition, 2004.

DATA STRUCTURES USING C++

CS 654

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, AVL Trees and Operations on AVL 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 Readings:

- 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.

COMPUTER ORGANISATION

CS 655

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, Auxiliary Memory, Associate Memory, Cache Memory.

Suggested Readings:

- 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/DreamTech Publishers, 2003.
- 3) William Stallings, "Computer Organization & Architecture", Pearson Education, Sixth Edition, 2003.

PROGRAMMING LAB -III (Java Programming)

CS 681

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.

PROGRAMMING LAB-IV (DATA STRUCTURES IN C++)

CS 682

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 AVL Trees.
9. Implementation of Traversal on Graph.
10. Implementation of B-Tree.