

KAKATIYA UNIVERSITY, WARANGAL
DEPARTMENT OF INFORMATICS
COUSE STRUCTURE FOR MCA II YEAR

MCA III SEMESTER FOR THE STUDENTS ADMITTED DURING THE
ACADEMIC YEAR 2009-10

Paper Code	Title	Workload Per Week		Marks		
		Theory	Practical	Sessional	University	Total
MCA211	Database Management Systems	4	--	20	80	100
MCA212	Data Communication and Networks	4	--	20	80	100
MCA213	Software Engineering	4	--	20	80	100
MCA214	Principles of Management	4	--	20	80	100
MCA215	.NET Programming	4	--	20	80	100
MCA216	DBMS Lab	--	4		50	50
MCA217	Soft Ware Testing Lab	--	4		50	50
MCA218	.NET Lab	--	4		50	50

MCA IV SEMESTER

Paper Code	Title	Workload Per Week		Marks		
		Theory	Practical	Sessional	University	Total
MCA221	Data Mining	4	--	20	80	100
MCA222	Unix Network Programming	4	--	20	80	100
MCA223	Advanced Java	4	--	20	80	100
MCA224	Soft Ware engineering II	4	--	20	80	100
MCA225	Accountancy and Financial Management	4	--	20	80	100
MCA226	UNP Lab	--	4		50	50
MCA227	Advance Java Lab	--	4		50	50
MCA228	Mini Project(Based on DBMS and Data Mining	--	4		50	50
MCAC229	Seminar	Satisfactory/Not Satisfactory				

UNIT – I

FUNDAMENTALS OF DATABASE CONCEPTS: Database and Database Users: Characteristics of the Database Approach – Advantages of Using the DBMS Approach – A Brief History of Database Applications.

Database System Concepts and Architecture: Data Models, Schemas, and Instances – Three Schema Architecture and Data Independence – Database Languages and Interfaces – The Database System Environment – Centralized and Client/Server Architectures for DBMSs – Classification of Database Management Systems.

Data Modeling Using the Entity Relationship Model: Using High-Level Conceptual Data Models for Database Design – An Example Database Application – Entity Types, Entity Sets, Attributes, and Keys – Relationship Types, Relationship Sets, Roles, and Structural Constraints – Weak Entity Types – ER Diagrams, naming Conventions, and Design Issues. (Chapters 1 to 3)

UNIT – II

FUNDEAMENTALS OF RELATIONAL MODEL:

The Relational Data Model and Relational Database Constraints: Relational Model Concepts – Relational Model Constraints and Relational Database Schemas.

The Relational Algebra and Relational Calculus: Unary Relational Operations: SELECT and PROJECT – Relational Algebra Operations from Set Theory – Binary Relational Operations: JOIN and DIVISION – Additional Relational Operation – The Tuple Relational Calculus – The Domain Relational Calculus.

Relational Database Design Using ER to Relational Mapping.
(Chapters 5.1, 5.2, 6, 7.1)

UNIT – III

RELATIONAL DATABASE DESIGN:

Functional Dependencies and Normalization for Relational Databases: Informal Design Guidelines for Relation Schemas – Functional Dependencies – Normal Forms Based on Primary Keys – General Definitions of Second and Third Normal Forms – Boyce-Codd Normal Form.

Relational Database Design Algorithms and Further Dependencies: Properties of Relational Decompositions – Algorithms for Relational Database Schema Design – Join Dependencies and Fifth Normal Form. (Chapters 10 and 11)
(Concepts without Proof)

UNIT - IV

FUNCTIONS OF DBMS:

Introduction to Transaction Processing Concepts and Theory: Introduction to Transaction Processing – Transaction and System Concepts – Desirable Properties of

Transactions – characterizing Schedules Based on Recoverability – Characterising schedules Based on Serialisability.

Concurrency Control Techniques: Two-Phase Locking Techniques for Concurrency Control – Concurrency Control Based on Timestamp Ordering.

Database Recovery Techniques: Recovery Concepts – Recovery Techniques Based on Deferred Update – Recovery Techniques Based on Immediate Update – Shadow paging. (Chapters 17.1 to 17.5, 18.1, 18.2, 19.1 to 19.4)

TEXT BOOK:

1. FUNDAMENTALS OF DATABASE SYSTEMS BY – RAMEZ ELMASRI SHAMKANT B. NAVATHE V EDITION (PEARSON)

REFERENCE BOOKS:

- 1 DATABASE SYSTEM CONCEPTS (IV Edition) BY - SILBER SCHATZ, KORTH G. SUDARSHAN (TMH 2002)
- 2 DATABASE MANAGEMENT SYSTEMS BY - ALEXI'S LEON AND MATHEWS LEON (LION VIKAS -2002)
- 3 DATABASE MANAGEMENT SYSTEMS (II Edition) - GERALD. V. POST
- 4 MODERN DATABASE MANAGEMENT (IV Edition) BY - F.R.MC.FADDEN, J.A.HOFFER, M.B.PRESCOTT(Addison Wisley 2000)
- 5 DATABASE MANAGEMENT (III Edition) BY - PRATT and J.J. ADAMSKI (THOMSON EDUCATION-2002)
- 6 DATABASE APPLICATION DEVELOPMENT & DESIGN-MANINO(MCGRAW HIL)
- 7 DATABASE SYSTEMS CONNOLLY, BEGG (PEARSON)
- 8 DATABASE SYSTEM IMPLEMENTATION – GARCIA, MOLNA, ULLMAN, WIDON (PHI)
- 9 A FIRST COURSE IN DATABASE SYSTEMS - ULLMAN, WIDON (PEARSON)
- 10 ROB. CORONEL, DATABASE SYSTEMS, THOMSON TECHNOLOGY.
- 11 DATABASE SYSTEMS CONNOLLY, BEGG (PEARSON)
- 12 DATABASE SYSTEM IMPLEMENTATION – GARCIA, MOLINA, ULLMAN, WIDON (PHI)

MCA212 DATA COMMUNICATIONS AND NETWORKS
EXTERNAL MARKS: 80

INTERNAL ASSESMENT :20

UNIT – I

BASIC CONCEPTS: Line Configuration – Point-to-Point, Multipoint – Topology – Mesh, Star, Tree, Bus, Ring, Hybrid topologies – Transmission Mode – simplex, Half-Duplex, Full-Duplex – Categories of Networks – LAN, MAN, WAN – InterNetworks.

THE OSI LAYER: The Model – Layered structure – Functions of the Layers – Physical layer, Data Link layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, Application Layer – TCP/IP Protocol suite

TRANSMISSION OF DIGITAL DATA: INTERFACES AND MODEMS: Digital Data Transmission – Parallel Transmission, Serial Transmission – DTE-DCE Interface – Data Terminal Equipment(DCE), Data Circuit-Terminating Equipment(DCE), Standards, EIA-232 Interface – Other interface standards – EIA-449, EIA-530, X.21 – MODEMS – Transmission Rate – Modem standards – 56K MODEMS – Traditional Modems, 56K Modems – Cable Modems –

MULTIPLEXING: Many to One Downloading, Uploading/ One to Many – Frequency-Division Multiplexing(FDM) – wave Division Multiplexing(WDM) – Time Division Multiplexing(TDM) – Inverse Multiplexing – Multiplexing Application – Common Carrier Services, Analog Services, Digital Services – Digital Subscriber Line(DSL) – ADSL, RADSL, HDSL, SDSL, VDSL – FTTC – FTTC in the Telephone Network, FTTC in the cable TV Network. (Chapter 2, 3, 6 & 8)

UNIT-II

ERROR DETECTION AND CORRECTION: Types of Errors – Single-Bit Error, Burst Error – Detection – Redundancy – Vertical Redundancy check(VRC) – Longitudinal Redundancy Check(LRC) – Cyclic Redundancy Check(CRC) – Checksum – Error Correction – Single-Bit Error Correction, Hamming Code, Burst Error Correction.

DATA LINK CONTROL: Line Discipline – ENQ/ACK, Poll/Select – Flow Control – Stop-and-wait, Sliding Window – Error Control – Automatic Repeat Request (ARQ), Stop-and-wait ARQ, Sliding window ARQ.

LOCAL AREA NETWORK: Project 802 – IEEE 802.1, LLC 371, MAC 371, Protocol Data Unit(PDU) – Ethernet – Access Method:CSMA/CD, Addressing, Electrical Specification, Frame Format, Implementation - Other Ethernet Networks – Switched Ethernet, fast Ethernet, Gigabit Ethernet – Token Bus – Token Ring - Access Method:Token Passing, Addressing, Electrical Specification, Frame Format, Implementation – FDDI - Access Method:Token Passing, Addressing, Electrical Specification, Frame Format, Implementation:Physical Medium Dependent(PMD) Layer.

SWITCHING: Circuit Switching – Space-Division Switches, Time-Division Switches, TDM Bus, Space and time-division Switching Combinations, Public Switch Telephone Network(PSTN) – Packet Switching – Datagram Approach, Virtual Circuit Approach, Circuit-Switched Connection versus Virtual Circuit Connection – Message Switching. (Chapter 9, 10, 12 and 14)

UNIT – III

INTEGRATED SERVICES DIGITAL NETWORK (ISDN): Services – Bearer Services, Tele services, Supplementary Services – History – Voice Communication over Analog Networks, Voice and data Communication over Analog Networks, Analog and Digital Services to Subscribers, Integrated Digital Network(IDN), Integrated Services Digital Network(ISDN) – subscriber Access to the ISDN – B Channels, D Channels, H Channels, User Interfaces, Functional Grouping, Reference Points – The ISDN Layers – Physical Layer, Data Link Layer, Network Layer – Broadband ISDN – services, Physical specifications – Future of ISDN.

X.25: X.25 Layers – Physical Layer, Frame Layer, Packet Layer, PLP Packets – Other Protocols related to X.25 – X.121 Protocol, triple-X Protocols.

NETWORKING AND INTERNETWORKING DEVICES: Repeaters – Not an Amplifier – Bridges – Types of Bridges, Bridges Connecting Different LANs – Routers – Routing concepts – Gateways – Other Devices – Multiprotocol Routers, Brouters, switches, Routing Switches – Routing algorithms – Distance Vector Routing – Sharing Information, Routing Table – Link State Routing – Information Sharing, The Dijkstra Algorithm. (Chapter 16, 17 and 21)

UNIT – IV

TRANSPORT LAYER: Duties of Transport Layer – End-to-End Delivery, Addressing, Reliable Delivery, Flow control, Multiplexing – Connection – Connection Establishment, connection Termination – The OSI Transport Protocol – Transport Classes, Transport Protocol Data Unit(TPDU), Connection-oriented and Connectionless services.

UPPER OSI LAYERS: Session layer – Session transport Interaction, Synchronization points, Session Protocol Data Unit – Presentation Layer – Translation, Encryption/decryption, Authentication, Data Compression – Application Layer – Message Handling System(MHS), File transfer, Access and Management(FTAM), Virtual Terminal(VT), Directory Services(DS), Common Management Information Protocol(CMIP).

TCP/IP PROTOCOL SUITE: Overview of TCP/IP – TCP/IP and the Internet, TCP/IP and OSI, Encapsulation – Network Layer – Internetwork Protocol(IP) – Addressing – classes, Dotted-decimal Notation, Nodes with More Than One Address, A Sample Internet – Subnetting – Three Levels of Hierarchy, Masking, Finding The Subnetwork Address – Other Protocols In the Network Layer – Address Resolution Protocol(ARP), Reverse Address Resolution Protocol(RARP), Internet Control Message Protocol(ICMP), Internet Group Message Protocol(IGMP) – Transport Layer – User datagram Protocol(UDP), Transmission Control Protocol(TCP). (Chapter 22, 23 and 24)

TEXT BOOK:

1. DATA COMMUNICATIONS AND NETWORKING BY BEHROUZ A. FOROUZAN (TATA Mc.Graw Hill)

REFERENCE BOOK:

2. BUSINESS DATA COMMUNICATION & NETWORKS By - FITZ GERALD (Jhon Wiley)
3. DATA & COMPUTER COMMUNICATIONS – W STALLINGS (PEARSON, PHI)

4. COMPUTER COMMUNICATIONS & NETWORKING TOPOLOGIES – MA GALLO, V.M. HANCOCK (THOMSON)
5. DATA COMMUNICATION & COMPUTER NETWORKS – R. AGARWAL, BB TIWARI (VIKAS)
6. COMPUTER NETWORKS – AS TANENBAUM (PHI)
7. COMPUTER NETWORKS – BLACK (PHI)
8. UNDERSTANDING COMMUNICATIONS & NETWORKS – WA SHAY (THOMSON)
9. COMPUTER NETWORKING A TOP-DOWN APPROACH FEATURING THE INTERNET BY – JAMES F. KUROSE AND KEITH W. ROSS (PEARSON)

MCA213 SOFTWARE ENGINEERING-I
EXTERNAL MARKS: 80

INTERNAL ASSESMENT :20

U N I T – I

INTRODUCTION TO SOFTWARE ENGINEERING: The Evolving Role of Software – Software – The Changing Nature of Software – Software myths.

A GENERIC VIEW OF PROCESS: Software Engineering-A Layered technology – A Process frame work – The capability Maturity Model Integration (CMMI) – Process Patterns – Process Assessment – Personal and Team Process Models – process Technology – Product and Process.

PROCESS MODELS: Prescriptive Models – The waterfall Model – Incremental Process Models – Evolutionary Process Models – Specialized Process Models – The Unified Process.
 (Chapters 1, 2 and 3)

U N I T – II

AN AGILE VIEW OF PROCESS: What is Agility? – What is an Agile Process? – Agile Process Models.

SOFTWARE ENGINEERING PRACTICE: Software engineering Practice – Communication Practice – Planning Practices – Modeling Practices – Construction Practice – deployment.

SYSTEM ENGINEERING: Compute-Based systems – The System Engineering Hierarchy – Business Process Engineering: An Overview – Product Engineering:An Overview – System Modeling.
 (Chapters 4, 5 and 6)

U N I T – III

REQUIREMENT ENGINEERING: A Bridge to Design and Construction – Requirements Engineering Tasks – Initiating the Requirements Engineering Process – Eliciting Requirements – Developing Use Cases – Building the analysis Model – Negotiating Requirements – Validating Requirements.

BUILDING THE ANALYSIS MODEL: Requirements Analysis – Analysis Modeling Approaches – Data Modeling Concepts – Object-oriented Analysis – Scenario-Based Modeling – Flow-Oriented Modeling – Class-Based Modeling – Creating a Behavioral Model.

DESIGN ENGINEERING: Design within the Context of Software Engineering – design Process and Design Quality – Design Concepts – The Design Model – Pattern-Based Software Design.
(Chapter 7, 8 and 9)

UNIT – IV

CREATING AN ARCHITECTURAL DESIGN: Software Architecture – Data Design – Architectural Styles and Patterns – Architectural Design – Assessing Alternative Architectural Designs – Mapping Data Flow into a Software Architecture.

MODELING COMPONENT-LEVEL DESIGN: What is a Component? – Designing Class-Based Component-Level Design – Object Constraint Language – designing Conventional Components.

PERFORMING USER INTERFACE DESIGN: The Golden Rules – User Interface Analysis and Design – Interface Analysis – Interface Design Steps – Design Evaluation. (Chapter 10, 11 and 12)

TEXT BOOK:

1. SOFTWARE ENGINEERING BY R.S. PRESSMAN (Mc. Graw Hill Sixth Edition)

REFERENCE BOOKS:

1. SOFTWARE ENGINEERING BY GHEZZI (PHI)
2. SOFTWARE ENGINEERING FUNDAMENTALS BY BEHFOROOZ AND HUDSON OXFORD UNIVERSITY PRESS
3. SOFTWARE ENGINEERING BY FAIRLEY (Mc.Graw Hill)
4. SOFTWARE ENGINEERING Theory & practice by Pfleeger (Pearson)
5. SOFTWARE ENGINEERING by KR Agarwal & Yogesh Singh (New Age)
6. SOFTWARE ENGINEERING ?(Schaum's Series TMH)
7. Object Oriented SOFTWARE ENGINEERING by SR Schach (TMH)

MCA214 PRINCIPLES AND PRACTICE OF MANAGEMENT
EXTERNAL MARKS: 80

INTERNAL ASSESSMENT :20

UNIT - I

Management: Meaning - Nature - Significance of Management Principles of Management - Approaches to Management - An Overview of Managerial Functions - Management as Profession - Social Responsibilities of Management.

PLANNING: Concept, Characteristics - Importance and Limitations Steps in Planning Process - Strategic Planning - Decision Making Process.

U N I T - II

ORGANISING: Concept - Importance - Steps in Organising Process Base and Problems of Departmentation - Delegation of Authority - Centralization and Decentralization - Line and Staff Relations - Span of Management.

U N I T - III

DIRECTING: Nature and Importance - Communication - Concept Elements - Process - Patterns of Communication - Barriers to Communication.

MOTIVATION: Nature and Significance - Types of Motivation - Determinants of Motivation - A Brief Discussion on Theories of Motivation (MASLOW's Theory, McCLELLAND FNEED THEORY, THEORY X AND THEORY Y).

LEADERSHIP: Concept - Importance - Leadership Styles - Autocratic, Democratic and Free Rein.

U N I T - IV

STAFFING: Concept - Human Resource Planning - A Brief Description of Recruitment - Selection - Training and Appraisal Methods

Controlling: Meaning - Importance - Steps in Control Process - Problems of Controlling - A Brief Description of Control Techniques

Coordination : Need for Coordination - Approaches to Effective Coordination - Techniques of Coordination.

TEXT BOOK:

1. L.M. PRASAD - PRINCIPLES AND PRACTICES OF MANAGEMENT.

REFERENCES:

1. MANAGEMENT, JAMES A.F. STONER AND CHARLES WANKEL
2. MANAGEMENT, KOONTZ HAROLD AND O'DONNELL CYRIL
3. ORGANISATION AND MANAGEMENT, LOUIS ALLEN
4. MANAGEMENT - TASKS AND RESPONSIBILITIES, PETER F DRUCKER

UNIT - I

Fundamentals of Visual Basic, Exception handling, windows forms, Control Classes, Different Types of Boxes, Labels, Buttons, Panels. (Chapters 1 to 7)

UNIT - II

WINDOWS FORMS: Different types of Bars, Menus, Views.

OBJECT - ORIENTED PROGRAMMING: Classes and objects constructors and destructors, inheritance, modifiers, Interfaces, Polymorphism, Vate Binding, Graphics handling and File handling. (Chapters 8 to 13)

UNIT - III

WEB FORMS: Working with webforms, Web forms and HTML, The Web control class, Web Forms and Boxes, Web Forms and Buttons, Validation Controls, Ad Rotators, Web Forms and HTML controls. (Chapters 14 to 19)

UNIT - IV

DATA ACCESS WITH ADO.NET : Accessing data with the server explorer, Data adapters and Data sets, Binding Controls to databases, Handling databases in code, Database access in Web Applications. Creating user Controls, Web user Controls, and Multithreading creating Windows services, Web Services and Deploying applications. (Chapters 20 to 25)

TEXT BOOK :

1. VB.NET PROGRAMMING (BLACK BOOK) BY STEVEN HOLZNER (Dreamtech-2003)

REFERENCE BOOKS:

1. VB.NET PROGRAMMING BY T. GADDIS (Dreamtech)
2. Microsoft Visual Basic. Net step by step By Halvosrson (PHI)
3. OOP with Microsoft Visual Basic.Net By Reynold Hacrte (PHI)

MCA216 DBMS-LAB

Introduction to SQL, DDL, DML, Statements, Built in functions, Aggregate Functions, Joins, Unions, Ordinary Queries, Sub queries, Corelated Sub Query, Nested Subqueries, Parellel & Subqueries.

i) PL/SQL: Data Types, Control structures, Cursor handling Mechanism, Sub programmes Procedure & Functions, Stored Procedures, Database triggers & exception handling.

SUGGESTED BOOK:

STARTING OUT WITH ORACLE – JOHN DAY, CV SLYKE (DREAM TECH)

ADDITIONAL BOOKS:

1. ORACLE DEVELOPER 2000 – IVAN BAYROSS (BPB)
2. SQL, PL/SQL – PS DESHPANDE (DREAM TECH)
3. ORACLE DATABASE 10G SQL – J PRICE (TMH)
4. DATABASE SYSTEMS USING ORACLE – N SHAH (PHI)
5. ORACLE FORMS DEVELOPERS HANDBOOK – LULUSHI (PEARSON)
6. ORACLE SQL AND PL/SQL HANDBOOK – JA PALINSKI (PEARSON)

MCA 217 -Software Testing Lab

(WIN RUNNER SOFTWARE MAY BE USED)

By Using the Calculator

1. Perform GUI Regression test using Rapid Test Script Wizard(RTSW).
2. Perform Bit map Regression test using RTSW.
3. Perform User Interface test using RTSW.
4. Perform Test template test using RTSW.
5. Perform GUI checkpoint for single property.
6. Perform checkpoint for single property.
7. Perform GUI checkpoint for multiple objects.
8. Perform Bitmap checkpoint for object/window.
9. Perform Bitmap checkpoint for screen area.

By Using the Sample Visual Basic Application

10. Perform GUI Regression test using Rapid Test Script Wizard for Visual Basic Application
11. Perform Bit map Regression test using RTSW for Visual Basic Application.
12. Perform User Interface test using RTSW for Visual Basic Application.
13. Perform Test template test using RTSW for Visual Basic Application.
14. Perform GUI checkpoint for single property for Visual Basic Application.
15. Perform checkpoint for single property (use VB Application)
16. Perform GUI checkpoint for multiple objects for Visual Basic Application.
17. Perform Bitmap checkpoint for object/window for Visual Basic Application.
18. Perform Bitmap checkpoint for screen area for VB Application.

Test Cases Preparation

19. Prepare a Test case to evaluate the process of changing the password of a user (Use Visual Basic Application).

20. Prepare a Test Case to evaluate the Calculator Operations.

(Develop an Visual Basic Application).

REFERENCE: 1. SOFTWARE TESTING TOOLS BY KVKK PRSAD (Dream tech)

2. software testing tools by nageshwar rao pusuluri (Dream Tech)

MCA218 VISUAL PROGRAMMING LAB

The concepts covered in the corresponding theory paper are to be implemented.

TEXT BOOK :

1. VB.NET PROGRAMMING (BLACK BOOK) BY STEVEN HOLZNER (Dreamtech-2003)

REFERENCE BOOKS:

2. VB.NET PROGRAMMING By T. GADDIS (Dreamtech)
3. Microsoft Visual Basic. Net step by step By Halvorsen (PHI)
4. OOP with Microsoft Visual Basic.Net By Reynold Hactte (PHI)

UNIT-I

What is Data Mining, Data Mining Functionalities, and classification, Data Mining Task, Integrating a Data Mining System, Major issues in Data Mining, Descriptive Data Summarization, and Data Cleaning. (Chapters 1,2.1 to 2.3)

UNIT-II

Data Integration and transformation, Data reduction, Data Discrimination and concept Hierarchy Generation. What is Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Complementation, From Data Warehouse to data mining. (Chapters 2.4 to 2.6, 3)

UNIT-III

Basic Concepts of frequent patterns, Frequent Item sets, mining methods, Association rules, what is classification and Prediction, Classification By Decision Tree Induction, Bayesian Classification, Rule-Based Classification. (Chapters 5.1, 5.2.1, 5.2.2, 5.3.1, 6.1, 6.2, 6.3.1, 6.3.3, 6.4.1, 6.4.2, 6.5.1 and 6.5.2)

UNIT – IV

What is Cluster analysis, types, Partitioning methods, Hierarchical methods, Density Based methods, Grid Based methods, and Model-Based Clustering methods, Outlier analysis? (Chapters 7.1 to 7.8 and 7.11)

TEXT BOOK:

1. DATA MINING CONCEPTS & TECHNIQUES BY JIAEEI HAN, MICHELINE & KAMBER (2nd EDITION) Harcourt India (Elsevier Publishing Company)

REFERENCE BOOKS:

1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.
4. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION
5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION
6. DATA WAREHOUSING, DATA MINING & OLAP BY ALEX BERSON AND STEPHEN J. SMITH (TMH)
7. Data Warehousing by S Mohanthy (TMH)
8. Data Warehousing using Oracle by Deshpande (Dreamtech)
9. Data Warehousing by Amitesh Sinha (Thomson)
10. Data Mining by P Adriaans & D Zantinge (Pearson)
11. Data Mining by S M Sivanandam & S Sumathi

MCA222 UNIX NETWORK PROGRAMMING
EXTERNAL MARKS: 80

INTERNAL ASSESMENT :20

U N I T - I

Interprocess Communication: Introduction, File and Record Locking, Simple Client-server Pipes, FIFO's, Streams and Messages, Name Spaces, System V IPC, Message Queues, Semaphores, Shared Memory, Socket and TLI. (Chapters 3, 3.1 to 3.12)

U N I T - II

A Network Primer Communication Protocols: Introduction, TCP/IP, XNS, SNA, NetBIOS, OSI Protocol, UUCP, Protocols Comparisons. (Chapters 4, 5, 5.1 to 5.8)

U N I T - III

Berkeley Sockets: Introduction, Overview, Unix Domain Protocols, Socket Addresses, Elementary Socket System Calls, Simple Examples, Advanced Socket System Calls, Reserved Ports, Stream Pipes, Passing File Descriptors, Socket Options, Asynchronous I/O, Input/Output Multiplexing, Out-of-Band and Data, Sockets and Signals, Internet Super server, Socket Implementation. (Chapters 6, 6.1 to 6.17)

U N I T - IV

Transport, Overview, Transport Endpoint Addresses, Elementary TLI Functions, Simple Example, Advanced TLI Functions, Streams, TLI Implementation, Stream Pipes, Passing File Descriptors, Input/Output Multiplexing, Asynchronous I/O, Out-of-Band Data. (Chapters 7, 7.1 to 7.13)

TEXT BOOK:

1. UNIX NETWORK PROGRAMMING BY W. RICHARD STEVENS

REFERENCE BOOKS:

1. UNIX SYSTEMS PROGRAMMING – K.A. ROBBINS, S. ROBBINS (PEARSON)
2. UNIX THE C ODYSSEY – M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)
3. Unix made easy by J Muster (TMH)
4. Advanced Unix Programming by MJ Rochkind (Pearson)

MCA223 ADVANCED JAVA
EXTERNAL MARKS: 80

INTERNAL ASSESMENT :20

U N I T - I

FILES AND STREAMS: Introduction, Data Hierarchy, Files and Streams, Creating a Sequential-Access File, Random-Access Files, Reading Data Sequentially from a Random-Access File.

NETWORKING: Introduction, Manipulating URLs, Reading a File on a Web Server, Establishing a Simple Server, Establishing a Simple Client, Client/Server Interaction with Stream Socket Connections, Connectionless

Client/Server Interaction with Datagrams, Client/Server Tic-Tac-Toe Using a Multithreaded Server, Security and the Network. (Chapter 17 and 21 of Book 1)

UNIT - II

JDBC DATABASE ACCESS: JDBC Basics, New Features in the JDBC 2.0 API (Chapter 26 and 27 of Book 2)

UNIT - III

REMOTE METHOD INVOCATION (RMI): Introduction, Case Study: Creating a Distributed System with RMI, Defining the Remote Interface Implementing the Remote Interface, Define the Client, Compile and Execute the Server and the Client.

JAVA BEANS: Introduction, Bean Box Overview, Preparing a Class to Be a JavaBeans, Creating a JavaBeans: Java Archive Files and the jar Utility, Adding Beans to the Bean Box, Connecting Beans with Events in the Bean Box, Adding Properties to a JavaBeans, Creating a JavaBeans with a Bound Property, Specifying the Bean Info Class for a JavaBeans, JavaBeans World Wide Web Resources. (Chapters 20 and 25 of Book 1)

UNIT - IV

SERVLETS: Overview of Serves, Interacting with Clients, The Life Cycle of a Servlet, Saving Client State, The servletrunner Utility, Running Servlets. (Chapters 34 to 39 of Book 2)

TEXT BOOKS:

1. JAVA HOW TO PROGRAM Third Edition - Deitel & Deitel
2. THE JAVA TUTORIAL CONTINUED Compione, Walrath, Huml, Tutorial Team - Addison Wesley

REFERENCE BOOKS:

1. JAVA TUTORIAL CONTINUED – CAMPIONE (Addison Wesley)
2. THE COMPLETE REFERENCE JAVA 2 (Fourth Edition) BY - PATRICK NAUGHTON & HERBET SCHILDT (TMH)
3. PROGRAMMING JAVA - DECKER&HIRSH FIELD VIKAS PUBLISKING (2001) (THOMSON LEARNING) (SECOND EDITON)
4. INTRODUCTION TO JAVA PROGRAMMING - Y.DANIEL LIANG PHI(2002)
5. OBJECT ORIENTED PROGRAMMING THROUGH JAVA 2 BY - THAMUS WU (Mc.Graw Hill)
6. JAVA 2 - DIETEL & DIETEL (PEARSON EDUCATION)
7. INTRODUCTION TO JAVA – BALA GURU SWAMY
8. INTRODUCTION TO PROGRAMMIND & OOD USING JAVA JAINO NINE & FA HOSCH (JOHN WILEY)
9. STARTING OUT WITH JAVA – JONY GADDIS (DREAM TECH PRESS)
10. JAVA PROGRAMMING – SCHAUM'S SERIES
11. OBJECT ORIENTED APPLICATION DEVELOPMENT USING JAVA – ER DOXE ETC. (THOMSON PRESS)
12. THINKING IN JAVA –BY – BRUCE ECKEL (PEARSON)
13. PROGRAMMING & PROBLEM SOLVING WITH JAVA – JM SLACK (THOMSON)
14. COMPUTING CONCEPTS WITH JAVA2 ESSENTIALS - CAY HORSTMANN (JOHNWILEY)
15. JAVA PROGRAMMING ADVANCED TOPICS – J WIGGLESWORTH, P LUMBY (THOMSON LEARNING)

U N I T – I

CREATING AN ARCHITECTURAL DESIGN: Software Architecture – Data Design – Architectural Styles and Patterns – Architectural Design – Assessing Alternative Architectural Designs – Mapping Data Flow into Software Architecture.

MODELING COMPONENT-LEVEL DESIGN: What is a Component? Designing Class-Based Components – Conducting Component-Level Design – Object Constraint Language – Designing Conventional Components.

PERFORMING USER INTERFACE DESIGN: The Golden Rules – User Interface Analysis and Design – Interface Analysis – Interface Design Steps – Design Evaluation. (Chapters 10, 11 and 12)

U N I T – II

PROJECT MANAGEMENT: The management Spectrum – The People – The Product – The Process – The Project – The W⁵HH Principle – Critical Practices.

MERTICS FOR PROCESS AND PROJECTS: Metrics in the Process and Project Domains – Software Measurement – Metrics for Software Quality – Integrating Metrics within the Software Process – Metrics for Small Organizations – Establishing a Software Metrics Program.

ESTIMATION: Observations on Estimation – The Project Planning Process – Software Scope and Feasibility – Resources – Software Project Estimation – Decomposition Techniques – Empirical Estimation Models – Estimation for Object-Oriented Projects – Specialized Estimation Techniques – The Make/buy Decision. (Chapters 21, 22 and 23)

U N I T – III

PROJECT SCHEDULING: Basic Concepts – Project Scheduling – Defining a Task Set for the Software Project – Defining a Task Network – Scheduling – Earned Value Analysis.

RISK MANAGEMENT: Reactive vs. Proactive Risk Strategies – Software Risks – Risk Identification – risk Projection – Risk Refinement – Risk Mitigation, Monitoring, and Management – The RMMM Plan.

QUALITY MANAGEMENT: Quality Concepts – Software Quality Assurance – Software Reviews – Formal Technical Reviews – Formal Approaches To SQA – Statistical Software Quality Assurance – Software Reliability – The ISO 9000 Quality Standards – The SQA Plan. (Chapters 24, 25 and 26)

U N I T – IV

CHANGE MANAGEMENT: Software Configuration Management – The SCM Repository – The SCM Process – Configuration Management for Web Engineering.

FORMAL METHODS: Basic Concepts – Mathematical Preliminaries – applying Mathematical Notation for Formal Specification – Formal Specification Languages – Object Constraint Language (OCL) – The Z Specification Language – The Ten Commandments of Formal Methods – Formal Methods – The Road Ahead.

CLEANROOM SOFTWARE ENGINEERING: The Clean room Approach – Functional Specification – Clean room Design – Clean room Testing.

REENGINEERING: Business Process Reengineering – Software Reengineering – Reverse Engineering – Restructuring – forward Engineering – The Economics of Reengineering. (Chapters 27, 28, 29 and 31)

TEXT BOOK:

1. SOFTWARE ENGINEERING BY R.S. PRESSMAN (McGraw Hill Sixth Edition)

REFERENCE BOOKS:

2. SOFTWARE ENGINEERING BY GHAZZI (PHI)
3. SOFTWARE ENGINEERING BY FAIRLEY (McGraw Hill)
4. SOFTWARE ENGINEERING by Behforouz and Hudson (Oxford University Press)
5. SOFTWARE ENGINEERING Theory & practice by Pfleeger (Pearson)
6. SOFTWARE ENGINEERING by KR Agarwal & Yogesh Singh (New Age)
7. SOFTWARE ENGINEERING (Schaum's Series TMH)
8. Object Oriented SOFTWARE ENGINEERING by SR Schach (TMH)
9. Object Oriented System Analysis And Design by Bennett et al (TMH)

MCA225 ACCOUNTING AND FINANCIAL MANAGEMENT

EXTERNAL MARKS: 80

INTERNAL ASSESMENT :20

UNIT – I

Accounting Information System – Users of Accounting information, Accounting concepts & conventions, Double entry system – Journal, Journalising.

Ledger Posting – Balancing, Subsidiary books – purchase, Sales, P/R, S/R, Cash Book, cash book Triple column. – Problems, Bank Reconciliation statement. – problems. Trial Balance – Preparation of T/B problems.

UNIT - II

Financial Statements – Utility to users, Trading A/C, Profit & Loss A/C – Classification of Expenses.

Classification of Assets and Liabilities, Balance Sheet – Problems – Adjustments: closing stock, outstanding expenses and incomes, prepaid expenses and incomes received in advance, Depreciation, Bad debts, provision for Doubtful debts; interest on capital and Drawings, Problems pertaining to sole Traders, Financial Statements of Non- Profit organization, Receipts & payments A/C, Income and Expenditure A/C and Balance Sheet – simple problems without adjustments.

UNIT - III

Financial Management – Meaning – Need - Profit maximization VS wealth maximization.

Financial Decisions making - Financing Decisions – Sources of Finance: Equity, Debt – Cost of various sources of financing – concept of capital structure. (simple description), Investment Decisions – Characteristics, dividend decisions – concept – Retained earnings.

Financial Analysis – Meaning – indicators of financial status – profitability liquidity, solvency, turnover, Leverage, Types of Financial Analysis – Horizontal Analysis – comparative statements, Vertical Analysis – Common Size statement.

Ratio analysis – meaning – Standards of Comparison.

Profitability Ratios – G.P. Ratio, N.P. Ratio, ROI, EPS, P/E Ratio, Liquidity Ratios – current Ratio, Quick Ratio, Solvency Ratios – Debt equity, Debt – Total funds Turnover Ratios – Stock Turnover, Debtors Turnover, Stock velocity, Debt collection period, Fixed assets turnover, working capital turnover, Simple problems on Ratio analysis.

UNIT - IV

Cost Accounting – Meaning – Significance of cost information Costs – Meaning - Classification : Functional Classification Behavior of costs – Fixed, variable – Features Simple description of costing methods, Preparation Cost sheet under unit costing using functional classification of Costs Cost information for decision making - Decision areas, Marginal Costing – Meaning – Marginal cost Statement, Break even Analysis – Graphic, mathematical Approach, Contribution Margin, P/V Ratio, BEP, Profit Planning, Sales Planning, Sample Problems of Marginal costing, key factor – Simple problems using key factor.

SUGGESTED READINGS:

1. Gupta, R.L. and Radha Swamy, M., Accountancy, Sultan Chand & Sons, New Delhi
2. Mukarjee A and Hanif M, Modern Accountancy, Tata Mc Graw Hill, New Delhi
3. Tulsin P.C, Financial Accounting, TMH, New Delhi
4. Maheswar SN and Maheswari S.K., Financial Accounting, Vikas Publishing House, Mumbai
5. Pandey I.M., Financial Management, Vikas Publishing House, Mumbai.
6. Khan M. Y and Jain P.K., Financial Management, TMH, New Delhi
7. Maheshwari S.N, Cost and Management Accounting, Vikas Publishing House, Mumbai
8. Jain P.K. and Naraang K.L., Cost Accounting, kalyani Publishers, Mumbai
9. Catherine Gowthrope, Business Accounting and Finance: For Non specialists (2nd Ed.) International Thomson Business press, Singapore.
10. JIAMBLO – MANAGERIAL ACCOUNTING (WILEY)

1. Write a program that takes one or more file/directory names as command line
2. input and reports the following information on the file:
 - a. File type.
 - b. Number of links.
 - c. Time of last access.
 - d. Read, Write and Execute permissions.
3. Write a C program that illustrates how to execute two commands concurrently with a command pipe.
4. Write a C program that illustrates the creation of child process using fork system call.
5. Write a C program that displays the real time of a day every 60 seconds.
6. Write a C program that illustrates file locking using semaphores.
7. Write a C program that implements a producer-consumer system with two processes.(using semaphores)
8. Write a C program that illustrates inter process communication using shared memory system calls.
9. Write a C program that illustrates the following.
 - a. Creating a message queue.
 - b. Writing to a message queue.
 - c. Reading from a message queue.

TEXT BOOK:

1. UNIX NETWORK PROGRAMMING BY W. RICHARD STEVENS

REFERENCE BOOKS:

1. UNIX SYSTEMS PROGRAMMING – K.A. ROBBINS, S. ROBBINS (PEARSON)
2. UNIX THE C ODYSSEY – M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)

PROGRAMS IN JDBC:

1. Write a JDBC Application which creates following menu.
 1. Select statement
 2. Statement other than select statement
 3. Exit
 Enter your choice (1..3):
 Answer:
2. Write a JDBC Application which inserting the data at runtime.
3. Write a JDBC Application to select values from table using prepared statement
4. Write a JDBC Application with designing the form

Query

5. Write a JDBC Application. Finding out column count and column labels along with data
6. Write a JDBC Application finding out all the tables in the database.
7. Write a JDBC Application reading dates and null values from the database.

1. Write a JDBC Application with form designing

The diagram shows a graphical user interface for a JDBC application. At the top, there is a row of buttons: "Insert", "Delete", "Select", and "Exit". There is also a small, partially visible button labeled "E" between "Delete" and "Select". Below these buttons is a large rectangular area containing four labels: "Emp no", "Emp Name", "Salary:", and "Designation".

9. Write a JDBC Application for SQL procedure Execution with both IN and OUT parameter using callable statement.
10. Write a JDBC Application for SQL function Execution using callable statement.

NETWORKING:

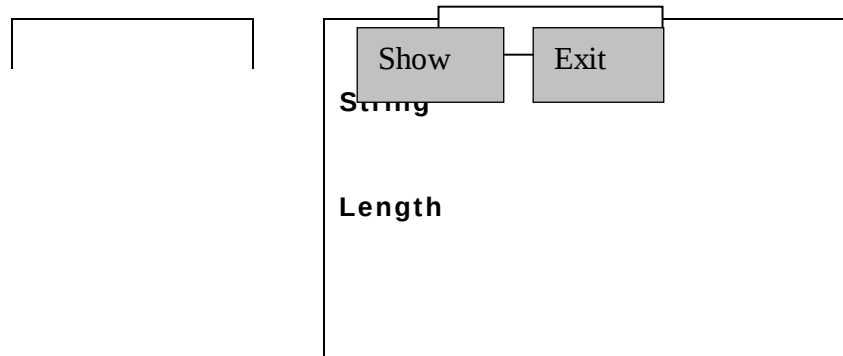
1. Write a client/server application using stream sockets
2. Write a client/server application using datagram sockets
3. Write a program for simple file transfer.
4. Write a program for reading from a URL
5. Write a program for Multithreaded FTP server
6. Write a client/server program with form designing (Text field, labels, Text Area, Buttons)

The diagram illustrates a client-server application interface. On the left is a large, empty rectangular box labeled "Client". To the right of this box is another rectangular area containing a form. At the top of this form are two buttons: "Send" and "Clear". Between these buttons is a small, partially visible button labeled "Se". Below the buttons is a text area labeled "TextArea".

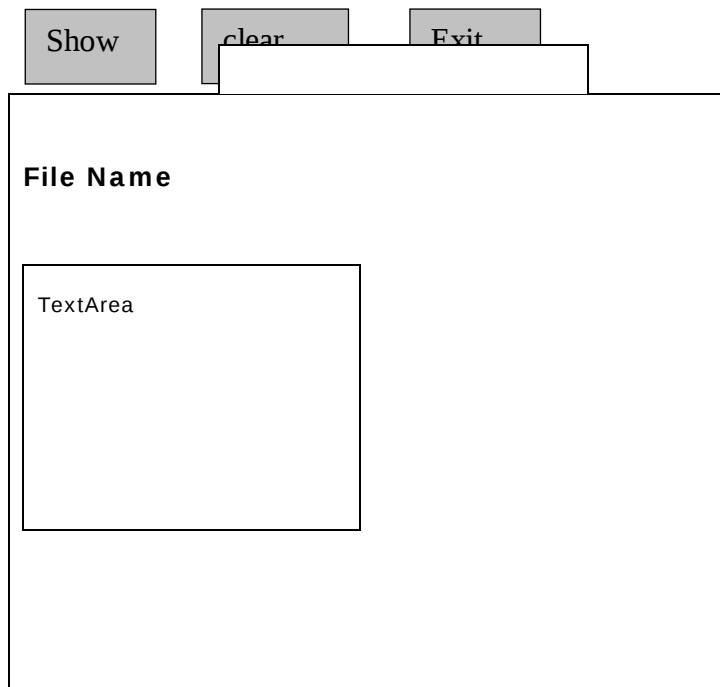
RMI:

1. Write a program for on RMI Application
2. Write a program for passing on objects to on RMI
3. Write an RMI Application for invoking the database to retrieve the results

4. Write an RMI Application with Form Designing



5. Write an RMI Application with form designing
Enter file name by selecting the file dialog box



JAVA – BEANS:

1. Write a Bean Application for an simple property
2. Write a Bean Application for an Boolean Property
3. Write a Bean Application to retrieve the values from the table by invoking database
4. Write a Bean Application for an Indexed property
5. Write a Bean Application for starting and stopping the Juggler Bean and Execute it in Applet
6. Write a Bean Application for an Bound property
7. Write a Bean Application for an constrained property
8. Write a Bean Application for Rotating a Molecular Bean

SERVLETS:

1. Write a servlet program for displaying a message in a browser using generic servlet
2. Write a servlet program to communicate html-servlet

Name:

Age:

3. Write a servlet program to retrieve the initial arguments
4. Write a servlet program to communicate the Html – Servlet – Database. Retrieve the results for a particular Empno.

Emp no

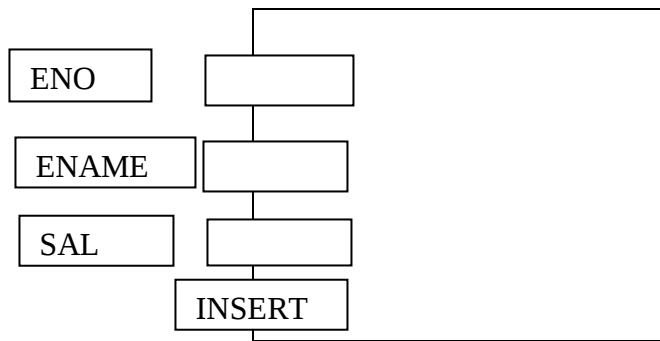
5. Write a servlet program to retrieve the results from a table in the format

Empno	Emp Name	Sal
101	xyz	1500
102	abc	3000
103	def	7000

6. W Communicating first servlet to second servlet
7. W ng the get and post methods.

Empno

8. Write a servlet program for session tracking using hidden form fields.
9. Write a servlet program for session tracking using http session.
10. Write a servlet program for session tracking using cookies
11. write a servlet program for communicating first servlet to another by URL class
12. Write a servlet program in the format using http servlet.



TEXT BOOK:

1. JAVA How to Programming BY DEITEL & DEITEL (PEARSON Education - Third Edition-2001)

REFERENCE BOOKS:

2. JAVA TUTORIAL CONTINUED – CAMPIONE (Addison Wesley)
3. THE COMPLETE REFERENCE JAVA 2 (Fourth Edition) BY - PATRICK NAUGHTON & HERBET SCHILDT (TMH)
4. PROGRAMMING JAVA - DECKER&HIRSH FIELD VIKAS PUBLISKING (2001) (THOMSON LEARNING) (SECOND EDITON)
5. INTRODUCTION TO JAVA PROGRAMMING - Y.DANIEL LIANG PHI(2002)
6. OBJECT ORIENTED PROGRAMMING THROUGH JAVA 2 BY - THAMUS WU (Mc.Graw Hill)
7. JAVA 2 - DIETEL & DIETEL (PEARSON EDUCATION)
8. INTRODUCTION TO JAVA – BALA GURU SWAMY
9. INTRODUCTION TO PROGRAMMIND & OOD USING JAVA – JAINO NINE & FA HOSCH (JOHN WILEY)
10. STARTING OUT WITH JAVA – JONY GADDIS (DREAM TECH PRESS)
11. JAVA PROGRAMMING – SCHAUM'S SERIES
12. OBJECT ORIENTED APPLICATION DEVELOPMENT USING JAVA – ER DOXE ETC. (THOMSON PRESS)
13. THINKING IN JAVA –BY – BRUCE ECKEL (PEARSON)
14. PROGRAMMING & PROBLEM SOLVING WITH JAVA – JM SLACK (THOMSON)
15. COMPUTING CONCEPTS WITH JAVA2 ESSENTIALS - CAY HORSTMANN (JOHNWILEY)
16. JAVA PROGRAMMING ADVANCED TOPICS – J WIGGLESWORTH, P LUMBY (THOMSON LEARNING)

KUMCA-228

MINI PROJECT

Using Database Server and front end Tools