



KAKATIYA UNIVERSITY, WARANGAL
DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE WITH EFFECT FROM 2013-14

MCA II YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	M A R K S		
			Internal	External	Total
MCA221	Data Mining	T (4)	20	80	100
MCA222	Unix Network Programming	T (4)	20	80	100
MCA223	Web Technologies	T (4)	20	80	100
MCA224	Mobile Communications	T (4)	20	80	100
MCA225	Accountancy and Financial Management	T (4)	20	80	100
MCA226	Unix Network Programming Laboratory	L (4)	--	50	50
MCA227	Web Technologies Laboratory	L (4)	--	50	50
MCA228	Data Mining Laboratory	L (4)	--	50	50
					650

MCA221	DATA MINING		DM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80	

UNIT – I

INTRODUCTION: What is Data Mining? , Data Mining on what kind of data?, Data Mining Functionalities, Are all of the Patterns Interesting?, classification of data mining systems, Data Mining Task primitives, Integration of a Data Mining System with a Database or data warehouse system , Major issues in Data Mining. **DATA PREPROCESSING:** Why preprocess the data, Descriptive Data summarization, Data Cleaning, Data Integration and transformation, Data reduction, Data Discrimination and concept Hierarchy Generation. (Chapters 1 & 2)

UNIT – II

DATA WAREHOUSE AND OLAP TECHNOLOGY: What is Data Warehouse, A Multidimensional Data Model, Data Warehouse Architecture, data Warehouse Implementation, from Data Warehouse to data mining? Data Cube Computation and data Generalization. Efficient Methods for Data Cube Computation, Further Development of Data Cube and OLAP Technology, Attribute-oriented Induction-An alternative method for Data Generalization and concept Description.(Chapters 3 & 4)

UNIT – III

MINING FREQUENT PATTERNS, ASSOCIATIONS AND CORRELATIONS: Basic concepts and a road Map, Efficient and scalable Frequent Item set Mining methods, Mining various kinds of Association Rules, from Association Mining to Correlation analysis, constraint-Based Association mining. **CLASSIFICATION AND PREDICTION :** What is classification and Prediction, issues regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Back propagation, support Vector Machines, Associative Classification, Lazy Learners, Other Classification methods, Prediction, accuracy and error measures, evaluating the accuracy of a classifier or predictor, Ensemble methods, Model selection.(Chapters 5 & 6)

UNIT – IV

CLUSTER ANALYSIS: What is Cluster analysis, types of data in cluster analysis, a categorization of major clustering methods, Partitioning methods, Hierarchical methods, Density Based methods, Grid Based methods, Model-Based Clustering methods, clustering high-dimensional data, constraint-based cluster analysis, Outlier analysis. (Chapters 7)

TEXT BOOKS

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

REFERENCE BOOKS

1. Data Mining Techniques – ARUN K PUJARI, University Press.
2. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION
3. Data Warehousing by S Mohanthy (TMH)
4. Data Warehousing by Amitesh Sinha (Thomson)
5. Data Mining by P Adriaans & D Zantinge (Pearson)
6. Data Mining by S M Sivanandam & S Sumathi

MCA222	UNIX NETWORK PROGRAMMING		UNP
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80	

UNIT I

INTRODUCTION TO UNIX FILE SYSTEM, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, ln, rm, unlink, kdir, rmdir, ps, who, w, ftp, telnet, rlogin, text processing utilities. Unix file structure, directories, files and devices, System calls, library functions, low level file access, usage of open, creat, read, write, close, lseek, stat, fstat. Process, process structure, starting new process, waiting for a process, zombie process, process control, process identifiers, system call interface for process management-fork, vfork, exit, wait, waitpid, exec, system, Signals- Signal functions, unreliable signals, interrupted system calls, kill. INTERPROCESS COMMUNICATION: File and Record Locking, Simple Client-server Pipes, FIFO's, Streams and Messages, Name Spaces, System V IPC, Message Queues, Semaphores, Shared Memory.(Chapters 3.1 to 3.12 of Text Book:1 & 2)

UNIT 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 of Text Book:1)

UNIT 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 of Text Book:1)

UNIT 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 of Text Book:1)

TEXT BOOK:

1. UNIX NETWORK PROGRAMMING BY W. RICHARD STEVENS
2. UNIX CONCEPTS AND APPLICATIONS, 3RD EDITION, SUMITABHA DAS, TMH.

REFERENCE BOOKS

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

MCA223	WEB TECHNOLOGIES		ADJ
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80	

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 Datagram's, Client/Server Tic-Tac-Toe Using a Multithreaded Server, Security and the Network.)

U N I T -II

JDBC: JDBC Overview, Architecture, Types of JDBC Drivers, DriverManager; Database Connection Statements , ResultSet, transaction,DataBaseMetadata,ResultSetMetadata and Aggregate functions, PreparedStatement,CallableStatement, Connection to various back ends.; New Features in the JDBC 2.0 /3.0 /4.0 API
 RMI: Introduction, Defining the Remote Interface Implementing the Remote Interface, Define the Client, Compile and Execute the Server and the Client. Case Study on creating a distributed system with database programming.RMI Security.

U N I T - III

SERVLETS: Servlet Basics, Setting up Servlet API. Creating a Java Web Application, The Servlet URL and Invoking Web Page, Servlet Structure, Testing a Servlet, Passing Data. Overview of Serves, Interacting with Clients, Servlet Runner Utility, Running Servlets. WEB SERVERS: Server installation, configuration and deployment procedure. MORE ON SERVLETS: The javax.servelet HTTP package, Handling Http Request & Responses, Accessing a Database Data Manipulation Operations via a Servlet; Using Cookies-Session Tracking, Security Issues.

U N I T - IV

INTRODUCTION TO JSP: The Problem with Servelet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC architecture's APPLICATION DEVELOPMENT: Generating Dynamic Content, JSP Tags, Using Scripting Elements Implicit JSP Objects, JSP-Rationale behind JSP's, compilation and execution, collaborating with Servlets,JSP's in Action, Error Pages, Using JSP's to access databases and remote databases.

TEXT-BOOK

1. AN INTRODUCTION TO NETWORK PROGRAMMING WITH JAVA, Jan Graba (Springer)
2. JAVA HOW TO PROGRAM Third Edition - Deitel & Deitel
3. THE JAVA TUTORIAL CONTINUED Compione, Walrath, Huml, Tutorial Team - Addison Wesley

REFERENCE BOOKS

1. Java Server Pages –Hans Bergsten, SPD O'Reilly.
2. J2EE 1.4 Bible (Dreamtech-2003).
3. Advance Java Technology – Prof. Savaliya- Dreamtech Press.
4. Java Server Programming, J2EE 1.6- KONGENT- Dreamtech press.

MCA224	MOBILE COMMUNICATIONS	MC
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT I

Introduction to Mobile Communications and Computing: Mobile Computing (MC): Introduction to MC, novel applications, limitations, and architecture's : Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services. (Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT II

Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP). Mobile Transport Layer : Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/ fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT III

Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues. Data Dissemination: Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

UNIT IV

Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs. Protocols and Tools: Wireless Application Protocol-WAP. (Introduction, protocol architecture, and Treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

TEXT BOOK:

1. Jochen Schiller, "Mobile Communications", Addison-Wesley. (Chapters: 4, 7, 9, 10, 11), second edition, 2004.
2. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing", Wiley, 2002 (Chapters 11, 15, 17, 26 and 27)

REFERENCE BOOKS

1. Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, October 2004.
2. Adelstein, Frank, Gupta, Sandeep KS, Richard III, Golden , Schwiebert, Loren, "Fundamentals of Mobile and Pervasive Computing", McGraw-Hill Professional, 2005.
3. Hansmann, Merk, Nicklous, Stober, "Principles of Mobile Computing", Springer, second edition, 2003.
4. Martyn Mallick, "Mobile and Wireless Design Essentials", Wiley DreamTech, 2003.

MCA225	ACCOUNTANCY AND FINANCIAL MANAGEMENT	AFM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT – I

Accounting Information System – Users of accounting information, Accounting concepts and conventions, Double entry system – Journal, Journalizing. Ledger Posting – Balancing, Subsidiary books – purchase, Sales, P/R, S/R, Cash Book, cash book Triple column – 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). 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.

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. Marginal Costing – Meaning – Marginal cost Statement, Break even Analysis - Simple Problems of Marginal costing.

TEXT BOOK

1. Gupta, R.L. and Radha Swamy, M., Accountancy, Sultan Chand & Sons, New Delhi

REFEREBCE BOOKS:

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

MCA226	UNIX NETWORK PROGRAMMING Laboratory	UNPL
WORK LOAD: 4 PPW	ASSIGNMENTS ASSESSMENT	EXTERNAL MARKS: 50

NOTE:

- All the concepts of programs from Text Book including exercises must be practice, execute and write down in the practical record book.
- Faculty must take care about PG standard programs it should be minimum 45 – 50.
- In the external lab examination student has to execute at least three programs with compilation and deployment steps are necessary.
- External Viva-voce is compulsory.

MCA227	WEB TECHNOLOGIES Laboratory	WTL
WORK LOAD: 4 PPW	ASSIGNMENTS ASSESSMENT	EXTERNAL MARKS: 50

NOTE:

- All the concepts of programs from Text Book including exercises must be practice, execute and write down in the practical record book.
- Faculty must take care about PG standard programs it should be minimum 45 – 50.
- In the external lab examination student has to execute at least three programs with compilation and deployment steps are necessary.
- External Viva-voce is compulsory.

MCA228	DATA MINING Laboratory	DML
WORK LOAD: 4 PPW	ASSIGNMENTS ASSESSMENT	EXTERNAL MARKS: 50

Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a datasets#. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization.

Launching WEKA, COMMAND-LINE(simple CLI), EXPLORER-User Interface, Preprocessing, Classification, Clustering, Associating, Selecting Attributes, Visualizing; EXPERIMENTER-Simple, Advanced; KNOWLEDGEFLOW-Introduction, Features, Components; ArffViewer; Converters;etc.,

RESOURCES:

Manuals and Software:

- <http://www.cs.waikato.ac.nz/ml/weka/index.html>
- Collections of Datasets:
- # <http://www.cs.waikato.ac.nz/ml/weka/datasets.html>