KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE

MCA COURSE STRUCTURE WITH EFFECT FROM 2013-14

MCA I YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	M A R K S		
			Internal	External	Total
MCA111	Problem Solving and Computer Programming	T (4)	20	80	100
MCA112	Computer Organization	T (4)	20	80	100
MCA113	Discrete Mathematical Structures	T (4)	20	80	100
MCA114	Internet Technologies	T (4)	20	80	100
MCA115	Managerial Economics	T (4)	20	80	100
MCA116	Problem Solving and Computer Programming Laboratory	L (4)	--	50	50
MCA117	Internet Technologies Laboratory	L (4)	--	50	50
MCA118	Open Source Laboratory	L (4)	--	50	50
					650

MCA111	PROBLEM SOLVING AND COMPUTER PROGRAMMING	PSCP
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T – I

INTRODUCTION TO COMPUTERS: Computers - History, Generations/Evolution, Types; Computer Hardware and Software. PROGRAMMING TECHNIQUES: Problem solving aspects (Definition & understanding a problem, algorithm, flowchart, Pseudo Code). Compilation process (Source code, Object code, executable code).Type of Software. Evolution of Programming languages. Various programming techniques (monolithic, structured programming, OOP)

INTRODUCTION TO OOP – Overview of C++, C++ programs, Data types, variables, constants, coding constants, expression precedence and associatively, mixed type expressions. OPERATOR's. Class, structures, union, friend functions, friend classes, inline functions, constructors, destructors, static members, scope resolution operator, passing objects to functions, function returning objects. FUNCTIONS: Functions in C++, User defined functions, standard library functions, and scope.

U N I T – II

SELECTION MAKING DECISIONS: Two-way selection, multi-way Selection.RPETETION: Concept of a loop, event –controlled and counter-controlled loops, loops in C++, recursion. TEXT I/O: Input O/P entities, Streams, Formatting input and output, character input/output Functions, character input/output examples. ARRAYS: Arrays and functions, array application sorting, searching. POINTERS: Pointers and functions, pointers to pointers, pointer arithmetic and arrays, passing an array to a function.

U N I T – III

CLASSES- Class objects, inline functions, static members, classes and pointers, structure, unions, enumerated types, the type definition. INHERITANCE AND AGGREGATION: Inheritance, private, protected, public, manager functions and inheritance, overriding member functions, polymorphism, multiple inheritance. Operator overloading, Member operator function, friend operator function, overloading special operators like [ ], ( ), comma operator, inheritance, types of inheritance, protected members, virtual base class, polymorphism, virtual functions, pure virtual functions.

U N I T – IV

CLASS templates and generic classes, function templates strings and generic functions, overloading a function templates, power of templates, Exception handling, Derived class exception, over handling generic function, exception handling functions, terminate(),unexpected(),uncaught(),exception(). EXCEPTION HANDLING: Exception handling classes, exception specification, exception in classes, standard exception. STREAMS, formatting I/O with class functions and manipulators, creating own manipulator, overloading << and >>, File I/ O, header files, conversion functions, array based I /O, Standard Template Library (STL).

TEXT BOOK:

- R.G. Dromey, "HOW TO SOLVE IT BY COMPUTER", PHI.
- A STRUCTURED APPROACH USING C++ BY B.A.FOROUZAN & RF GILBERG (THOMSON BUSINESS INFORMATION INDIA)
- Herbert Schilbt, C++ - The Complete Reference, TMH 2002
- J.P. Cohoon and J.W. Davidson, C++ program design – An Introduction To Programming and Object Oriented Design.- MGH 1999.

MCA112	COMPUTER ORGANIZATION	CO
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

LOGIC CIRCUITS:Basic Logic Functions, Synthesis of Logic Functions Using ADN, OR, and NOT Gates, Minimization of Logic Expression, Synthesis with NAND and NOR Gates, Practical Implementation of Logic Gates, Flip-Flops, Registersand Shift Registers, Counters, Decoders, Multiplexers, Programmable Logic Devices (PHDs), Field-Programmable Gate Arrays, Sequential Circuits. BASIC STRUCTURE OF COMPUTER HARDWARE AND SOFTWARE: Functional units, Basic operational concepts, Bus structures, Software, Performance, Distributed Computing. ADDRESSING METHODS : Basic Concepts, Memory Locations, Main Memory Operations, Addressing Modes, Assembly Language, Basic I/O operations, Stacks and Queues, Subroutines. (Chapter 1, 2.1 to 2.8, A.1 to A.13)

U N I T - II

PROCESSING UNIT: Some Fundamental Concepts, Execution of a Complete Instruction, Hardwired Control, Performance Considerations, Micro Programmed Control, Signed Addition and Subtraction, Arithmetic and Branching Conditions, Multiplication of Positive Numbers, Signed-Operand Multiplication, Fast Multiplication, Integer Division, Floating-Point Numbers and Operations. (Chapter 3, 6.4 to 6.10)

U N I T - III

INPUT-OUTPUT ORGANIZATION: Accessing I/O Devices, Interrupts, Processor Examples, Direct Memory Access, I/O Hardware, Standard I/O Interfaces, The Motorola 680X0 Family, The Intel 80X86 Family, The Power PC Family, The Alpha AXP Family, Architectural and Performance Comparisons, A Stack Processor. (Chapter 4, 8.1 to 8.6)

U N I T - IV

MEMORY: Semiconductor RAM memories, Read-Only Memories, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements. INTRODUCTION TO COMPUTER PERIPHERALS: I/O Devices, On-Line Storage. (Chapter 5, 9.1, 9.2)

TEXT BOOK

1. COMPUTER ORGANIZATION, TMH (IV EDITION) BY V.C. HAMACHER

REFERENCE BOOK

1. COMPUTER ORGANIZATION, (PHI) By MORIS MANO
2. COMPUTER ARCHITECTURE & ORGANISATION By HAYES, (TMH)
3. COMPUTER SYSTEMS ORGANISATION & ARCHITECTURE By.ARPINELLI,(ADDISON WESLEY)
4. THE ARCHITECTURE OF COMPUTER HARDWARE AND SYTEMS HARDWARE BY I ENGLANDER (WILEY)
5. COMPUTER SYTEMS DESIGN AND ARCHITECTURE BY VP HEURING, HF JORDAN (PEARSON)

MCA113	Discrete Mathematical Structures	DM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

FUNDAMENTALS: Sets, Relations and functions, Fundamental of logic, Logical inferences, First order logic, Quantified propositions, Mathematical induction

ELEMENTARY COMBINATORICS: Combinations and Permutations, Enumeration Repetitions, with constrained repetitions, The Principle of Inclusion-Exclusion.(Chapters 1-2)

U N I T -II

RECURRENCE RELATIONS: Generating functions, Coefficients of Generating functions, Recurrence Relations, Inhomogeneous Recurrence Relations (Chapter-3)

U N I T - III

RELATIONS AND DIAGRAMS: Relations and diagrams, Binary relations, Equivalence relations, Ordering relations, Lattices, Paths and Closures, Directed graphs, Adjacency matrices-Applications, Sorting and Searching (Chapter - 4)

U N I T - IV

GRAPHS: Graphs, Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs, Euler'sCircuits, Hamiltonian graphs, Chromatic numbers, Four-color problem, Network flows (Chapter 5)

TEXT-BOOK:

1. DISCRETE MATHEMATICS FOR COMPUTER SCIENTISTS, BY - J L MOTT, A KANDEL AND T PBAKER

REFERENCE BOOKS:

1. DISCRETE MATHEMATICAL STRUCTURE - (TMH) BY - TREMBLEY AND MANOHAR
2. DISCRETE MATHEMATICS WITH ALGORITHMS - (JOHN WILEY) BY - M.O. ALBERTSON AND J.P.HUTCHINSON
3. ELEMENTS OF DISCRETE MATHEMATICS-(TMH, SECOND EDITION) BY - C.L.LIU
4. DISCRETE MATHEMATICS - (PHI, THIRD EDITION) BY - BURNORD KOLMAN
5. DISCRETE MATHEMATICS BY KH ROSSEN (TMH)
6. DISCRETE MATHEMATICS BY S LIPSCHUTZ AND M. LIPSON SCHAUM'S SERIES (TMH)
7. DISCRETE MATHEMATICS FOR COMPUTER SCIENCE BY GARRRY HAGGARD, J. SCHILPF&S WHITE SIDES (THOMSON PRESS)
8. DISCRETE &COMBINATORIAL MATHEMATICS BY RALPH P GRIMALDI(PEARSON EDUCATION)
9. DISCRETE MATHEMATICAL STRUCTURES BY DS MALLIK & M K SEN (THOMSON PRESS)

MCA114	INTERNET TECHNOLOGIES	IT
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT – I

WORLD WIDE WEB–Histrory, Evolution, Web Terminology, Web Application Introduction. Difference between Client Side and Server Side Application Deployment.HTML- Basic HTML Tags, The document body, Text, Hyperlinks, Adding More Formatting, Lists, Using Color and Images, Images, Tables, MORE HTML- Multimedia Objects Frames, Forms-Toward Interactivity. CASCADING STYLE SHEETS – Introduction, using Inline Styles, Sample Examples, Defining Your Own Styles; Properties in Values in Styles; Style sheets A worked example; Formatting Blocks of Information; Layers; Embedded Style Sheets, Linking external sheets;

UNIT – II

INTRODUCTION TO JAVASCRIPT- JavaScript, Basics, Variables, Statements, Obtaining User Input with prompt dialog boxes, Operators (arithmetic, Decision making, assignment, logical, increment and decrement);CONTROL STRUCTURES - if... else selection statement, while, do... while repetitions statement, for statement, switch statement, break and continue statements. FUNCTIONS – function definition; User defined functions; program modules in JavaScript; scope rules, global functions, Random-number generator; Recursion; OBJECTS IN JAVA SCRIPT – Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects. EVENTS - onclick, onchange, onload, onerror, onmouseover, onmouseout, onselect, onfocus, onblur, onsubmit, onunload etc.,

UNIT – III

DHTML- Introduction, FILTER AND TRANSITIONS – Flip Filters: fliph and flipv; Transparency with the chroma Filter; Creating Image masks; Miscellaneous Image Filters: invert, gray and xray; Adding shadows to Text; Creating slope with alpha Filter; Making Text glow; Creating Motion with blur; Using the wave Filter; Advanced Filters: drop Shadow and light;blendTrans Transition;revealTrans Transition. ACTIVE SERVER PAGES- Introduction, Sample ASP Example; ASP Objects; Request Object; Response Object; Server Object; Session Object; Application Object; Sample database programming using ODBC.

UNIT – IV

PHP – Introduction to PHP, including PHP in a page, Data Types, program control, Arrays, User-defined functions, Built-in Functions, regular expression, using files. Building Web Applications with PHP- tracking users, using database programming with MySQL. XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, MathML, Other Markup Languages, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

TEXT BOOKS

1. Web Programming –Chris Bates – Third Edition.(Wiley)
2. Internet & World Wide Web- H. M. Deitel, P.J. Deitel, A. B. Goldberg-Third Edition

MCA115	MANAGERIAL ECONOMICS	ME
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

INTRODUCTION: Nature and Scope of Managerial Economics - Fundamental Concepts used in Managerial Economics - Methods of Economic Analysis for Managerial Decision Making - Objectives of a firm - Profit Maximization VS Wealth Maximization.

U N I T - II

CONSUMER BEHAVIOR AND DEMAND ANALYSIS: The theory of consumer behavior - Concept of utility - Marginal utility Analysis - Consumer surplus - Indifference curve analysis. Concept of demand - Law of demand - Demand determinants - Elasticity of demand - Types -Measurement of elasticity of demand - Types - Measurement of Elasticity of demand - Demand forecasting.

U N I T - III

PRODUCTION ANALYSIS: Laws of Production - The production function - ISO cost and ISO quant curves - Equilibrium of the firm and industry - Choice of optimal combination of factors of production - Choice of optimal expansion path - The law of supply - Derivation of supply curve – Market analysis - Pricing under various competitive situations.

U N I T - IV

National income analysis/ Measurement/ Growth rates Indian economy, Planning and development in India - Development strategies - Five Year Plans - Poverty - Food & Population problems. Break even Analysis.

TEXT BOOKS

1. MANAGERIAL ECONOMICS (UNIT - I, II, III) BY VARSHNEY & MAHESHWARI
2. INDIAN ECONOMY - (UNIT - IV) BY MISHRA & PURI

MCA116	PROBLEM SOLVING AND COMPUTER PROGRAMMING Laboratory	PSPL
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.

MCA117	INTERNET TECHNOLOGY Laboratory	ITL
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.

MCA118	OPEN SOURCE Laboratory	PCSL
WORK LOAD: 4 PPW	ASSIGNMENTS ASSESSMENT	EXTERNAL MARKS: 50

PC Hardware and Software Introduces the students to a personal computer / laptops and its basic peripherals, the process of assembling a personal computer, installation of system software like DOS, FOSS -Linux / Ubuntu and the required device drivers and how it should be configured. In addition hardware and software level troubleshooting process, tips and tricks would be covered. Usage of web browsers, e-mail. Office Productivity tools module would enable the students in crafting professional word documents, excel spread sheets and power point presentations. (Recommended to use Open / Libra /Star Office)

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MCA I YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS		
			Internal	External	Total
MCA121	Data Structures	T (4)	20	80	100
MCA122	Object Oriented Programming	T (4)	20	80	100
MCA123	System Software	T (4)	20	80	100
MCA124	Operating System	T (4)	20	80	100
MCA125	Probability and Statistical Methods	T (4)	20	80	100
MCA126	Data Structures Laboratory	L (4)	--	50	50
MCA127	Object Oriented Programming Laboratory	L (4)	--	50	50
MCA128	Operating System & System Software Laboratory	L (4)	--	50	50
					650

MCA121	DATA STRUCTURES	DS
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT – I

INTRODUCTION: The Abstract Data Type – A Model for an Abstract Data Type – Algorithm Efficiency. SEARCHING: List Searches – C ++ Search Algorithms – Hashed List Searches – Collision Resolution. LINKED LISTS: Linear List Concepts – Linked List Concepts – Linked List Algorithms – Processing a Linked List – Circularly Linked Lists – Doubly Linked Lists – List Abstract Data Type-Linked List Implementation. STACKS: Basic Stack Operations – Stack Linked List Implementation – Stack Applications – Stack ADT–Array Implementation. (Chapters 1,2, 3.4)

U N I T – II

QUEUES: Queue Operations – Queue Linked List Design – Queue Applications – Queue ADT-Linked List Implementation – Queue ADT-Array Implementation. RECURSION: Designing Recursive Algorithms – The Towers of Hanoi – C ++ Implementations of Recursion. INTRODUCTION TO TREES: Binary Trees – Binary Tree Traversals – Expression Trees – General Trees. SEARCH TREES: Binary Search Trees.AVL Trees and their implementation (Chapters 5 to 8,)

U N I T – III

HEAPS: Heap Definition – Heap Structure – Basic Heap Algorithms – Heap Data Structure – Heap Algorithms – Heap Applications.MULTIWAY TREES: m-way Search Trees – implified B-Trees-B tree Variations. ADVANCED SORTING CONCEPTS: General Sort Concepts – Insertion Sorts – Selection Sorts – Exchange Sorts – External Sorts. GRAPHS: Operations – Graph Storage Structures – Graph Algorithms. (Chapters 9, 10, 11, 12 of 1st Text Book)

U N I T – IV

ALGORITHM DESIGN TECHNIQUES: Greedy Algorithms — Divide and Conquer –Dynamic Programming — Ordering Matrix Multiplications – Backtracking Algorithms (Chapters 10.1, 10.2, 10.3, 10.5, of 2nd Text Book)

TEXT BOOKS

1 DATA STRUCTURES A PSEUDOCODE APPROACH WITH C ++ BY – RICHARD F. GILBERG. BEHROUZ A. FOROUZAN (THOMSON PRESS)
2 DATA STRUCTURES & ALGORITHM ANALYSIS IN C ++ BY – MARK ALLEN WEISS.

MCA122	Object Oriented Programming	OWJ
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT I

Java Fundamentals- Introducing Data Types and Operators- Program Control Statements (Chapters 1, 2, 3)

UNIT II

Introducing Classes, Objects and Methods-Arrays, Irregular Arrays- A Closer Look at Methods and Classes- Inheritance (Chapters 4, 5, 6, 7)

UNIT III

Packages and Interfaces – Exception Handling – Multithreaded Programming – Enumerations, Autoboxing, Static Import and Annotations (Chapters 8, 9, 11, 12)

UNIT IV

Using I/O- Applets, Events and Miscellaneous Topics – Introducing Swings (Chapters 10, 14, 15)

TEXT BOOK:

1. Java A Beginner's Guide, Fifth Edition, Tata McGRAW-HILL

References

1. Beginning Java, Java 7th Edition, Ivor Horton's, Wiley India Edition.
2. Java the Complete Reference 8th Edition, Herbert Schildt, Tata McGrawHill Edition.

MCA123	SYSTEM SOFTWARE	SS
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T – I

SYSTEMS PROGRAMMING**:** Assemblers Overview – Global Structure, .Stack Segment, .Data Segment, .Code Segment, Arithmetic – Addition, Subtraction, Multiplication, Division, Comments. Comparing and Branching – Decision making in Assembly, Unsigned Conditional jumps, Flags, Loops, Reading single characters, Sub programs-procedures, Macros – Declarations, Expansion, Parameters, Local Symbols, Parameter Separator, Assembly Listing.
(Chapters 2,4,5,6,7,8 text book2)

U N I T – II

BACKGROUND: Introduction, System Software and Machine Architecture, The Simplified Instructional Computer (SIC), SIC Machine Architecture, SIC/XE Machine Architecture, Traditional (CISC) Machines, VAX Architecture, Pentium Pro Architecture
ASSEMBLERS: Basic Assembler Functions, A Simple SIC Assembler, Assembler Algorithm and Data Structures, Machine-Dependent Assembler Features, Instruction Formats and Addressing Modes, Program Relocation, Machine-independent Assembler Feature, Literals, Symbol-Defining Statements, Expressions, Program Blocks, Control Sections and Program Linking, Assemblers Design Options, One-Pass Assemblers, Multi-Pass Assemblers,
(Chapters 1, 2 of text book1)

U N I T – III

LOADERS AND LINKERS: Basic Loader Functions, Design of an Absolute Loader, A Simple Bootstrap Loader, Machine-Dependent Loader Features, Relocation, Program Linking, Algorithm and Data Structures for a Linking Loader, Machine-Independent Loader Features, Automatic Library Search, Loader Options, Loader Design Options, Linkage Editors, Dynamic Linking, Bootstrap Loaders,
MACRO PROCESSOR: Basic Macro processor Functions, Macro Definition and Expansion, Macro Processor Algorithm and Data Structures, Machine-Independent Macro Processor Features, Concatenation of Macro Parameters, Generation of Unique Labels, Conditional Macro Expansion, Keyword Macro Parameters, Macro Processor Design Options.
(Chapters 3,4 of text book1)

U N I T – IV

COMPILERS: Compiler Functions: Grammars, Lexical Analysis, Syntactic Analysis, Code Generation, Machine-Dependent Compiler Features: Intermediate Form of the Program, Machine-Dependent Code Optimization, Machine-Independent Compiler Features: Structured Variables, Machine-Independent Code Optimization, Storage Allocation, Block-Structured Languages, Compiler Design Options: Division into Passes, Interpreters, P-Code compilers, Compiler-Compilers. (Chapters 4, 5 of text book 1)

TEXT-BOOK

1. SYSTEM SOFTWARE AN INTRODUCTION TO SYSTEMS PROGRAMMING -By LELAND L. BECK

2. ASSEMBLY LANGUAGE PROGRAMMING FOR THE IBM PC FAMILY- WILLIAM B JONES (DREAMTECH)

MCA124	OPERATING SYSTEMS	OS
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

INTRODUCTION: What is an Operating Systems?, Mainframe Systems, Desktop Systems, Distributed Systems, Real-Time Systems, Handheld Systems, Feature Migration, Computing Environments. COMPUTER-SYSTEM STRUCTURES: Computer-System Operation, I/O Structure, Storage Structure, Hardware protection, Network Structure. OPERATING SYSTEM STRUCTURE: System Components, Operating System Services, System Calls, System Programs, System Structure, Virtual Machines, System Design and Implementation. PROCESSES: Process Concept, Process Scheduling, Operations on Processes, Cooperating Processes, Inter process Communication, communication in Client-Server Systems. Multithreading concepts, Multithreading Models, Java Threads. (Chapters 1, 2, 3, 4 and 5)

U N I T - II

CPU SCHEDULING: Basic concepts, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling, Real-Time Scheduling, Process Scheduling Models. PROCESS SYNCHRONIZATION: Background, The Critical-Section Problem, synchronization Hardware, Semaphores, Critical Regions, Monitors, OS Synchronization. DEADLOCKS: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection. (Chapters 6, 7 and 8)

U N I T - III

MEMORY MANAGEMENT: Background, Swapping, Contiguous Memory Allocation, Paging, Segmentation. VIRTUAL MEMORY: Background, Demand Paging, Process Creation, Page Replacement, Allocation of Frames, Thrashing. FILE SYSTEM INTERFACE & IMPLEMENTATION: File Concept, Access Methods, Directory Structure, File-System Mounting, File Sharing, File-system Implementation, Directory Implementation, Allocation Methods, Free-Space Management, and Recovery.
(Chapters 9, 10, 11 and 12)

U N I T - IV

MASS-STORAGE STRUCTURE: Disk Structure, Disk Scheduling, Disk Management, Swap Space Management, RAID Structure, Disk Attachment, Stable-Storage Implementation. PROTECTION: Goals of Protection, Domain of Protection, Access Matrix, Implementation of access Matrix, Revocation of Access Rights, Capability-Based Systems. (Chapters 14 and 18)

TEXT BOOKS

1. OPERATING SYSTEM CONCEPTS (6th Edition) By - SILBERSCHATZ, GALVIN, GAGNE Jhon-Wiley (2002)

REFERENCE BOOKS

1. OPERATING SYSTEMS (IV Edition) By - William Stallings PHI (2002)
2. OPERATING SYSTEMS By - GARY NUTT (Pearson Education)
3. OPERATING SYSTEMS By - CHARLES CROWLEY TMH (2000)
4. MODERN OPERATING SYSTEMS By - A.S. TANENBAUM (PHI) (2002)
5. OPERATING SYSTEMS BY – DM DHAMDHERE (TMH)
6. UNDER STANDING OPERATING SYSTEMS BY – IM FLYNN, AM MCHOCS (THOMSON PRESS)
7. OPERATING SYTEMS – DIETEL (PEARSON)

MCA125	PROBABILITY AND STATISTICAL METHODS	PSM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

INTRODUCTION TO STATISTICS: Data Collection and Tabulation, Graphical Representation of Data Measures of Central Tendency and Dispersion, Moments, Skewness and Kurtosis. PROBABILITY: Basic Concepts and Terms, Probability Distribution Functions: Uniform, Binomial, Poisson, Mathematical Expectation, Normal and X2 Distributions.

U N I T - II

CORRELATION AND REGRESSION: Correlation Coefficient, Bivariate Correlation, Karl Pearsons Formula, Rank Correlation, Regression. Linear Regression Equations, Regression Coefficient - Multiple-Correlation. Analysis of Variance and Regression Analysis.

U N I T - III

TESTING OF STATISTICAL HYPOTHESIS: X2 Tests for Variance, Tests for Mean of a Single Sample, Two Sample Means some tests based on F Distribution.

U N I T - IV

ANALYSIS OF VARIANCE: One Way Classification, Two Way Classification, Statistical Analysis of Data.

TEXT BOOK

1. FUNDAMENTALS OF APPLIED STATISTICS – BY - GUPTA AND KAPOOR

REFERENCE BOOKS

1. FUNDAMENTAL OF MATHEMATICAL STATISTICS BY - V K KAPOOR AND GUPTA SC
2. STATISTICS (PHI) BY - FREUD
3. PROGABILITY STATISTICS AND RANDOM PROCESS BY - R VEERA RAJAN (TMH)
4. INTRODUCTION TO PROBABILITY & STATISTICS BY - J.S. MILTON & JC ARNOLD (TMH)
5. MILLER & FERUNDS PROBABILITY & STATISTICS FRO ENGINNER BY - JOHNSON (PEARSON)
6. PROBABILITY & STATISTICS FRO ENGINEERS & STATISTICSTS BY - WALPOSE (PEARSON)

MCA126	DATA STRUCTURES Laboratory	DSL
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.

MCA127	OBJECT ORIENTED PROGRAMMING Laboratory	OWJL
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.

MCA128	OPERATING SYSTEM AND SYSTEM SOFTWARE Laboratory	OS&SSL
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.

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DEPARTMENT OF COMPUTER SCIENCE

MCA COURSE STRUCTURE WITH EFFECT FROM 2013-14

MCA II YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS		
			Internal	External	Total
MCA211	Database Management Systems	T (4)	20	80	100
MCA212	Data Communication and Networks	T (4)	20	80	100
MCA213	Software Engineering	T (4)	20	80	100
MCA214	Principles and Practices of Management	T (4)	20	80	100
MCA215	.NET Programming	T (4)	20	80	100
MCA216	Database Management Systems Laboratory	L (4)	--	50	50
MCA217	Software Engineering Laboratory	L (4)	--	50	50
MCA218	.NET Programming Laboratory	L (4)	--	50	50
					650

MCA211	DATABASE MANAGEMENT SYSTEMS	DBMS
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T – 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)

U N I T – 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)

U N I T – 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)

U N I T – 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 – Characterizing schedules Based on Serializability. 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 BOOKS

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)
2. DATABASE MANAGEMENT SYSTEMS BY - ALEXI'S LEON AND MATHEWS LEON (LION VIKAS -2002)
3. DATABASE MANAGEMENT SYSTEMS (II EDITION) - GERALD. V. POST
4. A FIRST COURSE IN DATABASE SYSTEMS - ULLMAN, WINDON (PEARSON)

MCA212	DATA COMMUNICATION AND NETWORKING	DCN
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT I

BASIC CONCEPTS: Line Configuration –Topology –Transmission Modes – Categories of Networks. THE OSI LAYERS– TCP/IP Protocol suite. TRANSMISSION OF DIGITAL DATA: INTERFACES AND MODEMS: Digital Data Transmission –DTE-DCE INTERFACE– Other interface– 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 – Digital Subscriber Line(DSL) –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 –Redundancy – Vertical Redundancy check(VRC) – Longitudinal Redundancy Check(LRC) – Cyclic Redundancy Check(CRC) – Checksum – Error Correction – DATA LINK CONTROL: Line Discipline –Flow Control –Error Control. LOCAL AREA NETWORK: Project 802 – Ethernet – Other Ethernet Networks –Token Bus – Token Ring -FDDI. SWITCHING: Circuit Switching – Packet Switching – Message Switching. (Chapter 9, 10, 12 and 14)

UNIT III

INTEGRATED SERVICES DIGITAL NETWORK (ISDN): Services –History – subscriber Access to the ISDN – The ISDN Layers – Broadband ISDN – Future of ISDN. X.25: X.25 Layers – Other Protocols related to X.25. NETWORKING AND INTERNETWORKING DEVICES: Repeaters – Bridges – Routers – Gateways – Other Devices –Routing algorithms – Distance Vector Routing – Link State Routing. (Chapter 16, 17 and 21)

UNIT IV

TRANSPORT LAYER: Duties of Transport Layer – Connection — The OSI Transport Protocol.
UPPER OSI LAYERS: Session layer – Presentation Layer – Application Layer.
TCP/IP PROTOCOL SUITE: Overview of TCP/IP – Network Layer – Addressing –Subnetting – Other Protocols In the Network Layer –Transport Layer. (Chapter 22, 23 and 24)

TEXT BOOK:

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

REFERENCE BOOKS

1. BUSINESS DATA COMMUNICATION & NETWORKS By - FITZ GERALD (John Wiley)
2. DATA & COMPUTER COMMUNICATIONS – W STALLINGS (PEARSON, PHI)
3. COMPUTER COMMUNICATIONS & NETWORKING TOPOLOGIES – MA GALLO, V.M. HANCOCK (THOMSON)
4. DATA COMMUNICATION & COMPUTER NETWORKS – R. AGARWAL, BB TIWARI (VIKAS)
5. COMPUTER NETWORKS – AS TANENBAUM (PHI)
6. COMPUTER NETWORKS – BLACK (PHI)
7. UNDER STANDING COMMUNICATIONS & NETWORKS – WA SHAY (THOMSON)
8. COMPUTER NETWORKING A TOP-DOWN APPROACH FEATURING THE INTERNET BY – JAMES F. KUROSE AND KEITH W. ROSS (PEARSON)

MCA213	SOFTWARE ENGINEERING	SE
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

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 MODELS: Prescriptive Models - The waterfall Model - Incremental Process Models - Evolutionary Process Models - Specialized Process Models - The Unified Process. (Chapters1,2,3)

UNIT- II

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. REQUIRMENT 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. (Chapters 5, 6, 7 AND 8)

UNIT - III

DESIGN ENGINEERING: Design within the Context of Software Engineering - design Process and
Design Quality - Design Concepts - The Design Model - Pattern-Based Software Design.
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 Component-Level Design - Object Constraint Language - designing Conventional Components. (Chapters 9, 10 and 11)

UNIT - IV

PERFORMING USER INTERFACE DESIGN: The Golden Rules - User Interface Analysis and Design - Interface Analysis - Interface Design Steps - Design Evaluation. 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 12, 25 and 26)

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)

MCA214	PRINCIPLES AND PRACTICES OF MANAGEMENT	PPM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT – I

MANAGEMENT: Meaning - Nature - Significance of Management Principles of Management - Approaches to Management, Development of Management Thought, Management Process and Skills, Managers and Environment, Social Responsibilities of Management. PLANNING: Concept, Characteristics - Importance and Limitations Steps in Planning Process - Strategic Planning - Decision Making.

UNIT – II

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

UNIT – 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, McCLLELAND FNEED THEORY, THEORY X AND THEORY Y).LEADERSHIP: Concept - Importance - Leadership Styles - Autocratic, Democratic and Free Rein.

UNIT – 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 BOOKS

PRINCIPLES AND PRACTICE OF MANAGEMENT BY L.M. PRASAD.

REFERENCE BOOKS

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

MCA215	.NET PROGRAMMING	.NET
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

INTRODUCTION TO .NET FRAMEWORK: .NET Overview - Behind Microsoft .NET- The .NET Platform - .NET Framework Design Goals -.NET Framework. - The Common Language Runtime - CLR Environment and Executables – Metadata - JIT Compilation - Automatic Memory Management -Assemblies and Manifests - Intermediate Language (IL) - The CTS and CLS - CLR Execution.
FUNDAMENTALS OF VISUAL BASIC- Introduction to Visual Basic .NET, Windows forms, Control Classes, Different Types of Boxes, Labels, Buttons, Panels and Exception handling. Windows Forms applications and GDI+ - Windows Forms custom control creation. Different types of Bars, Menus, and Views. (Chapters 1 to 7)

U N I T - II

CONSOLE PROGRAMMING:
VISUAL BASIC.NET: Visual Basic .NET- Modules- variables- error handling- Arrays, lists - collections – Files- directories- streams - Object serialization - Regular expressions – Threading
OBJECT ORIENTED PROGRAMMING: Classes and objects constructors and destructors, inheritance, modifiers, Interfaces, Polymorphism, late Binding, Graphics handling and File handling. (Chapters 8 to 13)

U N I T - III

ASP.NET: Introduction - Working in ASP.NET -Controls - Working with web forms, 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. Session & Cookies – Caching - Authentication & Authorization - Web User Controls - Working with Web Config file - Implementing Security - Crystal Reports - Creating Setup and Deployment. (Chapters 14 to 19)

U N I T - IV

APPLICATION DEVELOPMENT USING ADO .NET: Features of ADO.NET. Architecture of ADO.NET – ADO.NET providers –Accessing Data bases Using ADO.NET- Connection opening and closing– Command object – Data Adapter – Dataset – Data Tables - Controlling table views with Data Views and Data Relation Objects- Data-binding in Windows Forms and Web Forms. Data base 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)
2. .NET Framework Essentials, Third Edition, Thuan L.Thai, Hoang Lam Publisher: O'Reilly. 2003

REFERENCE BOOKS

1. VB.NET PROGRAMMING BY T. GADDIS (Dreamtech)
2. Microsoft Visual Basic. Net step by step By Halverson (PHI)
3. OOP with Microsoft Visual Basic.Net By Reynolds Hacrtte (PHI)

MCA216	DATABASE MANAGEMENT SYSTEM Laboratory	DBMSL
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.

MCA217	SOFTWARE ENGINERING Laboratory	STL
WORK LOAD: 4 PPW	ASSIGNMENTS ASSESSMENT	EXTERNAL MARKS: 50

SOFTWARE TESTING – Introduction, purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs. Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle. Basic Structural Modeling: Classes, Relationships, Class & Object Diagrams. Interactions, Interaction diagrams, Use cases, Use case Diagrams, Activity Diagrams, Component, Deployment, Component diagrams and Deployment diagrams; Caste Study on Unified Library Application(ULA).

To learn and use the testing tools to carry out the functional testing, load/stress testing and use the following (or similar) automated testing tools to automate testing:

a) Win Runner/QTP for functional testing.
b) Load Runner for Load/Stress testing.
c) Test Director for test management.

List of Sample Programs /Experiments

1. The student should take up the case study of Unified Library Application (ULA) which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

2. Student has to take up another case study of his/her own interest and do the same what ever mentioned in first problem. Some of the ideas regarding case studies are given in reference books which were mentioned and it would be referred for some new idea.

REFERENCE BOOKS:

1. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech
2. Software Testing Concepts and Tools, P.Nageswara Rao, Dreamtech Press.
3. Grady Booch, James Rumbaugh, Ivan Jacobson : The Unified Modeling Language User Guide, Pearson Education 2nd Edition

MCA218	.NET PROGRAMMING Laboratory	.NETL
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.

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)	MARKS		
			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 & TECHINIQUES 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