MCA I YEAR I SEMESTER:

<table>
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<th>Paper No</th>
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UNIT I


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.

UNIT II

SELECTION MAKING DECISIONS: Two-way selection, multi-way Selection. REPETITION: 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.

UNIT 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.

UNIT 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.
UNIT - 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, Registers and 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)

UNIT - 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)

UNIT - III


UNIT - 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 SYSTEMS HARDWARE BY I ENGLANDER (WILEY)
5. COMPUTER SYSTEMS DESIGN AND ARCHITECTURE BY VP HEURING, HF JORDAN (PEARSON)
UNIT - 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)

UNIT - II

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

UNIT - 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)

UNIT - IV

GRAPHS: Graphs, Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs, Euler's Circuits, 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)
UNIT – I


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


TEXT BOOKS

UNIT - I

UNIT - II

UNIT - III

UNIT - IV

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

<table>
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<th>WORK LOAD: 4 PPW</th>
<th>ASSIGNMENTS ASSESSMENT</th>
<th>EXTERNAL MARKS: 50</th>
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**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

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**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

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<th>WORK LOAD: 4 PPW</th>
<th>ASSIGNMENTS ASSESSMENT</th>
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</table>

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

**MCA I YEAR II SEMESTER:**

<table>
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<th>Paper No</th>
<th>Paper Title / Subject</th>
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</table>

**UNIT – I**


**UNIT – II**


**UNIT – III**


**UNIT – IV**


**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.
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:

References
UNIT – I


UNIT – II


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)

UNIT – III


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)

UNIT – IV


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)
UNIT-I

UNIT-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)

UNIT-III

UNIT-IV

TEXT BOOKS

REFERENCE BOOKS
2. OPERATING SYSTEMS By - GARY NUTT (Pearson Education)
3. OPERATING SYSTEMS By - CHARLES CROWLEY TMH (2000)
5. OPERATING SYSTEMS BY – DM DHAMDHERE (TMH)
6. UNDER STANDING OPERATING SYSTEMS BY – IM FLYNN, AM MCHOCS (THOMSON PRESS)
7. OPERATING SYTEMS – DIETEL (PEARSON)
UNIT I

UNIT 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.

UNIT 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.

UNIT 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. PROBABILITY 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**  
| 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**  
| 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**  
| 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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UNIT I

UNIT II

UNIT III

UNIT IV

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)
UNIT I

UNIT II

UNIT III

UNIT IV

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)
UNIT - I

UNIT- II

UNIT - III

UNIT - IV

TEXT BOOK:

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)
UNIT – I


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


UNIT – IV


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
### Work Load: 4 PPW

### Internal Marks: 20

### External Marks: 80

**UNIT I**

**Introduction to .NET Framework:**

**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)

**UNIT 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)

**UNIT III**

**ASP.NET:**

**UNIT 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)
3. OOP with Microsoft Visual Basic.Net by Reynolds Hacrtte (PHI)
### MCA216 DATABASE MANAGEMENT SYSTEM Laboratory

<table>
<thead>
<tr>
<th>DBMSL</th>
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<tbody>
<tr>
<td>WORK LOAD: 4 PPW</td>
<td>ASSIGNMENTS ASSESSMENT</td>
<td>EXTERNAL MARKS: 50</td>
</tr>
</tbody>
</table>

**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 ENGINEERING Laboratory

<table>
<thead>
<tr>
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<tr>
<td>WORK LOAD: 4 PPW</td>
<td>ASSIGNMENTS ASSESSMENT</td>
<td>EXTERNAL MARKS: 50</td>
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</tbody>
</table>

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.


# 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 whatever 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:

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.
MCA II YEAR II SEMESTER:

<table>
<thead>
<tr>
<th>Paper No</th>
<th>Paper Title / Subject</th>
<th>Workload Per week (Theory : Lab)</th>
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<td>MCA221</td>
<td>Data Mining</td>
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<td>MCA222</td>
<td>Unix Network Programming</td>
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<td>MCA224</td>
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<td>MCA225</td>
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<td>MCA228</td>
<td>Data Mining Laboratory</td>
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</tbody>
</table>

Total: 650
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


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
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


UNIT IV


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 ODYSEY – M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)
3. ADVANCED UNIX PROGRAMMING - MJ ROCHKIND (PEARSON)
UNIT – I


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.

UNIT – 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


UNIT – III


UNIT – 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

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.
UNIT I


UNIT II


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:


REFERENCE BOOKS

<table>
<thead>
<tr>
<th>MCA225</th>
<th>ACCOUNTANCY AND FINANCIAL MANAGEMENT</th>
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</table>

**UNIT – I**


**UNIT – II**


**UNIT - III**


**UNIT – IV**


**TEXT BOOK**

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

**REFEREBCE BOOKS:**

2. Tulsin P.C, Financial Accounting, TMH, New Delhi
6. Maheshwari S.N, Cost and Management Accounting, Vikas Publishing House, Mumbai
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.

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; ArfViewer; Converters;etc.,

RESOURCES:

Manuals and Software:
- Collections of Datasets:
- # http://www.cs.waikato.ac.nz/ml/weka/datasets.html
# MCA III YEAR I SEMESTER:

<table>
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<th>Paper No</th>
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<tr>
<td>MCA318</td>
<td>Mini Project Laboratory</td>
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|          |                                      |         |
| Elective - I |                                      |         |
| B. Human Computer Interaction |                               | B. E-Commerce |
| C. Software Project Management |                              | C. Information Retrieval System |
|          |                                      |         |
| Elective – I I |                                  |         |

Total: 650 marks
KAKATIYA UNIVERSITY, WARANGAL
DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE WITH EFFECT FROM 2013-14

MCA III YEAR II SEMESTER:

<table>
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<td>Major Project Work</td>
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The Project work constitutes a major component in most professional programmes. It needs to be carried out with due care, and should be executed with seriousness by the students. The project work is not only a partial fulfilment of the MCA requirements, but also provide a mechanism to demonstrate ASK (Attitude, Skills, and Knowledge) with specialisation. The project work should compulsorily include the software development.

The majority of the students are expected to work on a real-life project preferably in some industry/ R&D Laboratories / Educational Institution / Software Company. Students are encouraged to work in their interested area. However, it is NOT MANDATORY for a student to work on a real-life project. The student can formulate a project problem with the help of his / her Guide and submit the project proposal of the same. APPROVAL OF THE PROJECT PROPOSAL IS MANDATORY. If approved, the student can commence working on it, and complete it. Use the latest versions of the software packages for the development of the project. Project problem domain selected and the specifications should be very much genuine.

Every student is mandatory to present two seminars in the sixth semester on the progress of the project.
UNIT – I


UNIT – II


UNIT – III


UNIT – IV

REASONING IN UNCERTAIN SITUATIONS: Introduction, Logic-Based Adductive Inference, Abduction: Alternatives to Logic, the Stochastic Approach to Uncertainty. (Chapter 8)

TEXT BOOK:

1. ARTIFICIAL INTELLIGENCE by George F Luger, Pearson Education.

REFERENCE BOOKS

1. ARTIFICIAL INTELLIGENCES by Ritch & Knight.
2. INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS By D.W. Patterson,(PHI-2001)
3. ARTIFICIAL INTELLIGENCE By Patrick Henry Winston( Pearson)
4. PRINCIPLES OF ARTIFICIAL INTELLIGENCE (Narosa)
5. Artificial Intelligence By Shiar Russel Peter Norvig (Pearson)
6. EXPERT SYSTEMS SYSTEMS AND PRACTICE By Giarratano & Riely (Thomson)
7. ARTIFICIAL INTELLIGENCE APPLICATIONS PROGRAMMING By M Tim Jones
UNIT – I


UNIT – II


UNIT – III


UNIT – IV


TEXT BOOK:

CRYPTOGRAPHY AND NETWORK SECURITY principles and Practice FOURTH Edition By William Stallings (Pearson Asia)

REFERENCE BOOKS

2. MAYER & MATYAS : CRYPTOGRAPHY – Wiley B. SCHNEIER : APPLIED CRYPTOGRAPHY
   (John Wiley)
3. CRYPTOGRAPHY IN C AND C++ :WEISCHANBACH – A PRESS
4. CRYPTOGRAPHY MYSTIFIED :HERSHEY
5. INTRODUCTION TO CRYPTOGRAPHY BY J A BUCHANAN (SPRINGER)
Unit I
J2ME Overview

Unit II
J2ME Architecture and Development Environment
J2ME Best Practices and Patterns: The Reality of Working in a J2ME World, Best Practices

Unit III
Commands, Items, and Event Processing, J2ME User Interfaces, Display Class, The Palm OS Emulator, Command Class, Item Class, Exception Handling.
High-Level Display: Screens: Screen Class, Alert Class, Form Class, Item Class, List Class, Text Box Class, Ticker Class
Low-Level Display: Canvas: The Canvas, User Interactions, Graphics, Clipping Regions, Animation

Unit IV
Record Management System: Record Storage, Writing and Reading Records, Record Enumeration, Sorting Records, Searching Records, Record Listener
JDBC Objects: The Concept of JDBC, JDBC Driver Types, JDBC Packages, Overview of the JDBC Process, Database Connection, statement Objects, Result set, Transaction Processing, Metadata, Data Types, Exceptions.
JDBC and Embedded SQL: Model Programs, Tables, Indexing, Inserting Data into Tables, Selecting Data from a Table, Metadata, Updating Tables, Deleting Data from a Table, Joining Tables, Calculating Data, Grouping and Ordering Data, Subqueries, VIEWS

TEXT BOOK

REFERENCE BOOKS
A. Cloud Computing

UNIT – I

UNIT – II

UNIT – III

UNIT – IV

TEXT BOOK:
1. Cloud Computing – Insight into New Era Infrastructure, Dr. Kumar Saurabh, Wiley India.

REFERENCE BOOKS:
1. Cloud Computing, Roger Jennings, Wiley India
3. Cloud Computing Bible, Barry Sosinsky, Wiley
6. The Cloud at your service, Rosenberg and Matheos, Manning Publications
**B. HUMAN COMPUTER INTERACTION**

**UNIT - I**
Introduction: Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design, The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

**UNIT - II**
Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.

**UNIT - III**
Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

**UNIT - IV**

**TEXT BOOKS:**
1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamTech.
2. Designing the user interface. 3rd Edition Ben Shneidermann , Pearson Education Asia

**REFERENCE BOOKS:**
C. SOFTWARE PROJECT MANAGEMENT

UNIT I

INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT
Project Definition – Contract Management – Activities Covered By Software Project Management – Overview Of Project Planning – Stepwise Project Planning.

PROJECT EVALUATION

UNIT II

ACTIVITY PLANNING

UNIT III MONITORING AND CONTROL

UNIT IV MANAGING PEOPLE AND ORGANIZING TEAMS

REFERENCES:
MCA315 | ELECTIVE - II | E-II
---|---|---
WORK LOAD: 4 PPW | INTERNAL MARKS: 20 | EXTERNAL MARKS: 80

A. Soft Computing

UNIT-I
AI Problems and Search: AI problems, Techniques, Problem Spaces and Search, Heuristic Search Techniques- Generate and Test, Hill Climbing, Best First Search Problem reduction, Constraint Satisfaction and Means End Analysis. Approaches to Knowledge Representation- Using Predicate Logic and Rules.

UNIT-II

UNIT-III

UNIT-IV

Text Books:

References:
B. E- Commerce

UNIT - I

UNIT - II
Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems. Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT - III

UNIT- IV
Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research. Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processings, Desktop video conferencing.

TEXT BOOK:


REFERENCES:

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
4. Electronic Commerce – Gary P.Schneider – Cengage Learning..
C. INFORMATION RETRIEVAL SYSTEM

UNIT I


UNIT II

AUTOMATIC INDEXING: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages. DOCUMENT AND TERM CLUSTERING: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters. USER SEARCH TECHNIQUES: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, weighted searches of Boolean systems, Searching the Internet and hypertext - INFORMATION VISUALIZATION: Introduction, Cognition and perception, Information visualization technologies.

UNIT III


UNIT IV


TEXT BOOK:

REFERENCES:

1. Write a program that contains a string (char pointer) with a value ‘Hello world’. The program should XOR each character in this string with ‘0’ and displays the result.
2. Write a program that contains a string (char pointer) with a value ‘Hello world’. The program should AND, OR and XOR each character in this string with 127 and display the result.
3. Write a program to perform encryption and decryption using Cesar Cipher algorithm.
4. Write a program to perform encryption and decryption using Substitution cipher algorithm.
5. Write a program to perform encryption and decryption using Hill Cipher algorithm.
6. Write a program to implement the DES algorithm logic.
7. Write a program to implement RSA Algorithm.
8. Write a Program to Implement DES-2.
9. Write a program to implement Diffie-Hellman Key Exchange mechanism.
10. Write a program to encrypt user’s passwords before they are stored in a database table, and to retrieve them whenever they are to be brought back for verification.
11. Write a program on Key generation (public and private key pair).
12. Write a program to perform a digital signature on a given text.
13. Write a program to implement Random Number Generation Algorithm.
14. Write a program to implement MAC generation algorithm.
15. Write a program to implement MAC with hash.
16. Write a program to implement MAC with single key.
17. Write a program to implement MAC with double key.

**Note:** The above programs can be implemented using C/C++/Java.
1. Create a program which creates the following kind of menu.

- cut
- copy
- past
- delete
- select all
- unselect all

![Menu Example](image1)

2. Create a menu which has the following options:

- cut - can be on/off
- copy - can be on/off
- paste - can be on/off
- delete - can be on/off
- select all - put all 4 options on
- unselect all - put all 4 options off

![Menu Example](image2)

3. Create an MIDP application which examines if a phone number, which a user has entered is in the given format.
- Area code should be one of the following: 040, 041, 050, 0400, 044
- There should be 6-8 numbers in telephone number (+ area code)

4. Create a slide show which has three slides, which includes only text. Program should change to the new slide after 5 seconds. After the third slide program returns to the first slide.

5. Create a MIDP application, which show to the user 5-10 quiz questions. All questions have 4 possible options and one right option exactly. Application counts and shows to the user how many right answers were right and shows them to user.
6. Create a MIDP application, where the user can enter player name and points. The program saves the information to the record using RMS at MIDP device. Program should also print out the top 10 player list to the end user. You can use this class in your game if you made own class for saving and reading record sets.

7. Create a slide show which has three slides, which includes pictures at PNG format. Program should change to the new slide other 5 seconds.

8. Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array.
9. Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array. You can enter four data (integer) values to the input text field.

10. Create, compile and run a basic UDP-based client-server application.
Students should carry out the mini project based on the subjects studied in the course.