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)