KAKATIYA UNIVERSITY WARANGAL
DEPARTMENT OF COMPUTER SCIENCE

COURSE STRUCTURE FOR M.SC. (CSC) WITH EFFECT FROM 2013-14

M.SC. I YEAR II SEMESTER:

Paper No	Paper Title/Subject	Workload Per Week (Theory : Lab)	Marks		
			Internal	External	Total
MSCCS121	INTERNET TECHNOLOGIES	T(04)	20	80	100
MSCCS122	AUTOMATA THEORY AND FINITE LANGUAGES	T(04)	20	80	100
MSCCS123	UNIX NETWORK PROGRAMING	T(04)	20	80	100
MSCCS124	SYSTEM SOFTWARE	T(04)	20	80	100
MSCCS125	WEB TECHNOLOGIES	T(04)	20	80	100
MSCCS126	WEB TECHNOLOGIES LABORATORY	L(04)	--	50	50
MSCCS127	UNIX PROGRAMING LABORATORY	L(04)	--	50	50
MSCCS128	INTERNET TECHNOLOGY LABORATORY	L(04)	--	50	50
					650

MSCCS121	INTERNET TECHNOLOGIES		IT
WORK LOAD: 4 PPW	**INTERNAL MARKS: 20**	**EXTERNAL MARKS: 80**	

UNIT - I

HTML- Basic HML, The document body, Text, Hyperlinks, Adding More Formatting, Lists, Using Color and Images, Images, Tables, Frames, Forms-Toward Interactivity . Cascading Stylesheets - Introduction, Inline Styles, Embedded Style Sheets, Linking external sheets, Backgrounds, text flow and box model. (Text Book 1 chapters 4, 5 and 6)

UNIT - II

JavaScript- Introduction, simple programming, Obtaining User Input with prompt Dialogs, 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 - program modules in JavaScript, programmer defined functions, function definition, Random-number generator, scope rules, global functions, recursion, JavaScript: Arrays. (Text Book 1 chapters 7, 8, 9 and 10)

UNIT - III

JavaScript: Objects - Math Object, String Object, Date Object, Boolean & Number Object, document and window Objects. Event Model - on click, on load, on error, onmouseover, onmouseout, on focus, on blur, on submit, on reset, more DHTML events. Filter and Transitions - flipv, fliph, Chroma, masks, invert, gray, x-ray, shadow to text, alpha, glow, wave, drop shadow, light, blend Trans, reveal Trans. (Text Book 1 chapters 11, 12, 14 and 15)

UNIT - IV

Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Math, Other Markup Languages, and Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM). (PHP from Text Book 2 chapters 7, XML from Text Book 1 chapter No. 20)

TextBook:
1. Internet& World Wide Web- H. M. Deitel, P.J. Deitel, A. B. Goldberg-Third Edition

MSCCS122	AUTOMATA THEORY AND FORMAL LANGUAGES	AFL
WORK LOAD: 4 PPW	**INTERNAL MARKS: 20**	**EXTERNAL MARKS: 80**

NOTE: One of the bits in each question should be a problem.

U N I T - I

FINITE AUTOMATA AND REGULAR EXPRESSIONS : Preliminaries, Finite state systems, Nondeterministic finite automata (NFA), Deterministic finite automata (DFA), NFA TO DFA conversion Regular expressions, interconversions, Two-way finite automata, finite automata with output, State minimization applications. PROPERTIES OF REGULAR SETS: Pumping Lemma, closure properties of regular sets. (Chapters 1, 2, 3.1 and 3.2)

U N I T - II

CONTEXT FREE GRAMMARS (CFG): Context free grammars Derivation tree, simplification of context - Free grammars, Normal forms. PUSHDOWN AUTOMATA: Informal description, Definitions, pushdown automata design. (Chapters 4.1 to 4.6, 5)

U N I T - III

PROPERTIES OF CONTEXT FREE LANGUAGES (CFL): Pumping Lemma, closure properties, decision algorithms for CFLs. TURING MACHINES (TM): The turning machine & model, computable languages and functions, design of TM, modification of TM, Church's hypothesis. (Chapters 6, 7)

U N I T - IV

RECURSIVE & RECURSIVELY INNUMERABLE LANGUAGES: UNDECIDABILITY: Properties of recursive and recursively innumerable languages, Universal turing machine, post correspondence problem. Decidable and Undecidable problems, universal turing machine, Rice's theorem.THE CHOMSKY HIERARCHY: Regular grammars, Unrestricted grammars, interconversions between regular grammars and finite automata, context - sensitive languages, (Chapters 8.1 to 8.8, 9)

TEXT BOOK:

1.INTRODUCTION TO AUTOMATA THEORY LANGUAGES AND COMPUTATION By - J.E. HOPCROFT, J.D. ULLMAN (Narosa)

Note: For Examples refer the book. Introduction to computer Theory - DIA Cohen (John Wiley)

REFERENCE BOOKS:

1.INTRODUCTION TO COMPUTER THEORY-DAVIEL I.A.COHEN (John wiley, IInd Edition)
2.INTRODUCTION TO LANGUAGES AND THEORY OF COMPUTATION By - JOHN C. MARTIN (Second Edition TMH)
3. THEORY OF COMPUTATION By - CHANDRA SEKHARAN & MISRA (PHI)
4.INTRODUCTION TO AUTOMATA THOERY, LANGUAGES & COMPUTATION - JE HOPFCROFT, R. MOTWANI, JD ULLMAN (PEARSON)
5.THE THEORY OF COMPUTATION BERNARD M MORET (PEARSON)
6.INTRODUCTION TO THEORY OF COMPUTATION - M SIPSER (THOMSON)
7.INTRODUCTION TO THEORY OF COMPUTER SCIENCE - EV KRISHNA MURTHY (EWP)
8.AN INTRODUCTION TO FORMAL LANGUAGES & AUTOMATA - PETER LINZ (NAROSA)
9.AUTOMATA & COMPULABILITY - DC KOZEN (SPINGER)
10.THOERY OF COMPUATATION - SK AZAD (DHANPAT RAI & CO)

MSCCS123	UNIX NETWORK PROGRAMMING		UNP
WORK LOAD: 4 PPW	**INTERNAL MARKS: 20**		**EXTERNAL MARKS: 80**

U N I T - I

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

U N I T - II

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

U N I T - III

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

U N I T - IV

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

TEXT BOOK:
1.UNIX NETWORK PROGRAMMING BY W. RICHARD STEVENS

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

MSCCS124	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, RISC Machines. 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)
REFERENCE BOOK:
    1. SYSTEM SOFTWARE AND OPERATING SYSTEMS -By DHAMDHERE - TMH 2nd Edition
SYSTEM PROGRAMMING - DONOVON

MSCCS112	WEB TECHNOLOGIES		WT
WORK LOAD: 4 PPW	**INTERNAL MARKS: 20**		**EXTERNAL MARKS: 80**

U N I T - I

MULTITHREADING: Introduction, Class Thread: An Overview of the Thread Methods, Thread States: Life Cycle of a Thread, Thread Priorities and Thread Scheduling, Thread Synchronization, Producer/Consumer Relationship without Thread Synchronization, Producer/ConsumerRelationship withThread Synchronization, Producer / Consumer Relationship: The CircularBuffer, Daemon Threads, Runnable Interface, and Thread Groups. 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.PROGRAMMING JAVA - DECKER&HIRSH FIELD VIKAS PUBLISKING (2001) (THOMSONLEARNING) (SECOND EDITON)
4.INTRODUCTION TO JAVA PROGRAMMING - Y.DANIEL LIANG PHI(2002)
5.OBJECT ORIENTED PROGRAMMING THROUGH JAVA 2 BY - THAMUS WU (Mc.Graw Hill)
6.JAVA 2 - DIETEL & DIETEL (PEARSON EDUCATION)
7.INTRODUCTION TO JAVA - BALA GURU SWAMY
8.INTRODUCTION TO PROGRAMMIND & OOD USING JAVA - JAINO NINE & FA HOSCH(JOHNWILEY)
9.STARTING OUT WITH JAVA - JONY GADDIS (DREAM TECH PRESS)

MSCCS126	WEB TECHNOLOGIES LAB	WTL
WORK LOAD: 4 PPW	**REVIEW ASSESSMENT**	**EXTERNAL MARKS: 50**

Programs are to be practiced on the basis of topics covered in corresponding theory paper.

MSCCS127	UNIX NETWORK PROGRAMMING LAB	UNPL
WORK LOAD: 4 PPW	**REVIEW ASSESSMENT**	**EXTERNAL MARKS: 50**

Programs Using UNIX or LINUX

1) Shell Programming
2) Simple Program using the commands - PS, Nohup, Wail, Kill, Nice, At, Batch, Cron, Sh,Cd, Empr etc.
3) File Locking & Record Locking
4) Pipes
5) Message Queues
6) FIFO
7) Semaphore
8) Client-Server example.
9) Shared memory
10) Socket Programming

BOOK FOR REFERENCE:

1.   UNIX THE C ODYSSEY - M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)
2.   UNIX NETWORK PROGRAMMING - W. RICHARD STEVENS

1. Create a simple HTML page which demonstrate all types of lists.
2. Create a letter head of your college using following styles
    i. image as background
    ii. use header tags to format college name and address
3. Create a web page, which contains hyper links like fruits, flowers, animals.When you click on   hyper links, it must take you to related web page, these web pages must contains with related images.
4. Create a hyperlink to move around within a single page rather than to load another page.
5. Create a leave letter using different text formatting tags.
6. Create a table format given bellow using row span and column span.

RNO	NAME	

   Insert 5 records.

7. Create a table with different formats as given bellow.
    i. Give different background and font colors to table header, footer and body.
    ii. Use table caption tag.
8. Divide a web page vertically and horizontally with scroll bars, name them as shown bellow decorate it with some items. F1

8. Divide a web page as shown bellow.

9. Create a student Bio-Data, using forms.
10. Create a web page using following style sheets
    i. Inline style sheets.
    ii. Embedded style sheets.
    iii. External style sheets

11. Create a web page using "class" style sheets with different "border-width" property values like thick, medium, thin, grove, inset, and outset, red & blue.

12. Accept marks from bellow form, calculate total and average, results must be shown in alert box.
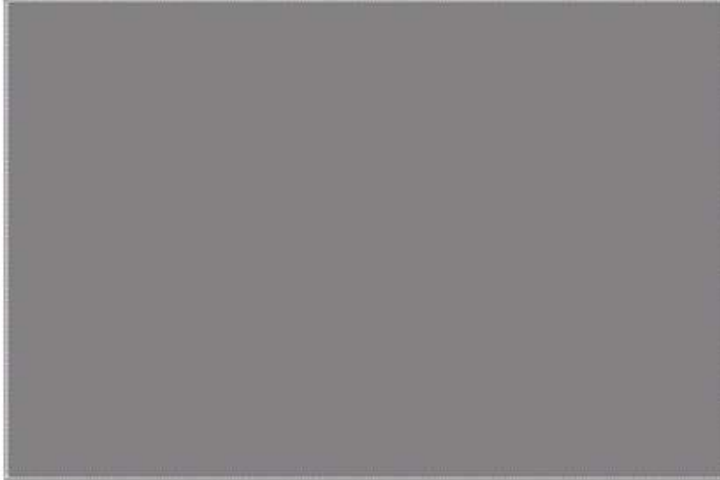
13. Write a JavaScript program to accept name and index of name character from prompt box, convert name into uppercase and display name and index char in dialogbox.

14. Write a JavaScript program to accept two values from form and apply any 5 mathematicalfunctions.

15. Display the current date and time in both GMT and local form.

16. Write a JavaScript program on MouseOver, MouseOut, blur events.

17. Write a XML program using document type definitions

18. Write Student database with XML.

19. Write a XML program using XS

PHP Programs

1. Write a PHP program to Display "Hello"

2. Write a PHP Program to display the today's date.

3. Write a PHP Program to read the employee details.

4. Write a PHP Program to display the

5. Write a PHP program to prepare the student marks list.

6. Write a PHP program to generate the multiplication of two matrices.

7. Write a PHP Application to perform demonstrate the college website.

8. Write a PHP application to add new Rows in a Table.

9. Write a PHP application to modify the Rows in a Table.

10. Write a PHP application to delete the Rows from a Table.

11. Write a PHP application to fetch the Rows in a Table.

12. Developan PHP application to make following Operations
   i.   Registration of Users.
   ii. Insert the details of the Users.
   iii. Modify the Details.
   iv. Transaction Maintenance.
   a) No of times Logged in
   b) Time Spent on each login.
   c) Restrict the user for three trials only.
   d) Delete the user if he spent more than 100 Hrs of transaction.

(All exercises from the text book must be practiced in addition to the above problems)