

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 86
M.Sc. DEGREE : INFORMATION TECHNOLOGY
COURSES OF STUDY

(Effective from the academic year 2009 - 2010)

CREDIT BASED SYSTEM

Subject Code	Title of Course	Credits	Total Teaching Hours			Exam Hours	Cont. Assessment		End Semester		Maximum Marks
			Lecture	Tutorial	Practical		T	P	T	P	
CS/PC/CA 14	Computer Architecture	4	4	1	0	3	50	-	50	-	100
CS/PC/NA 14	Network Management and Administration	4	4	1	0	3	50	-	50	-	100
CS/PC/WP14	Web Programming	4	3	0	2	3	25	25	25	25	100
CS/PC/DB 14	Database Systems	4	3	0	2	3	25	25	25	25	100
CS/PE/CP13	C Programming	3	2	0	2	3	15	35	15	35	100
CS/PE/AT 13	Advanced Programming Techniques	3	2	0	2	3	15	35	15	35	100
CS/PE/GI 13	Geographical Information System	3	2	0	2	3	25	25	25	25	100
CS/PE/MS 13	Multimedia Systems	3	2	0	2	3	-	50	-	50	100
CS/PC/OP 24	Object Oriented Programming - I	4	3	0	2	3	25	25	25	25	100
CS/PC/XW 24	XML and Web Application	4	3	0	2	3	25	25	25	25	100
CS/PC/OS 24	Operating Systems	4	4	1	0	3	50	-	50	-	100
CS/PC/AD24	Algorithms and Data Structures	4	4	1	0	3	50	-	50	-	100
CS/PE/SE 23	Software Engineering	3	3	1	0	3	50	-	50	-	100
CS/PE/SI 23	Security Issues in Information Technology	3	3	1	0	3	50	-	50	-	100
CS/PE/BE 23	Business English Certificate	3	2	0	2	3	50	-	50	-	100
CS/PE/WT 23	Web Technologies	3	2	0	2	3	25	25	25	25	100
CS/PC/OO 34	Object Oriented Programming - II	4	3	0	2	3	25	25	25	25	100
CS/PC/OU 34	Object Oriented Systems Development Using UML	4	4	1	0	3	50	-	50	-	100
CS/PC/DM 34	Data Mining and Warehousing	4	4	1	0	3	50	-	50	-	100
CS/PC/VP 34	Visual Programming	4	3	0	2	3	25	25	25	25	100
CS/PE/IS 33	Information Systems	3	3	1	0	3	50	-	50	-	100
CS/PE/SP 33	Software Project Management	3	3	1	0	3	50	-	50	-	100
CS/PN/SI 32	Summer Internship	2	0	0	2	-	-	-	-	-	100
CS/PC/ST 44	Software Testing	4	4	1	0	3	50	-	50	-	100
CS/PC/PC 44	Parallel Computing	4	4	1	0	3	50	-	50	-	100
CS/PC/PR 44	Project	4	2	4	10	1	0	50	Viva -	50	100
CS/PE/MC 43	Mobile Computing	3	3	1	0	3	50	-	50	-	100
CS/PE/NN 43	Artificial Neural Networks	3	3	1	0	3	50	-	50	-	100

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086.

M.Sc. DEGREE : INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009-2010)

COMPUTER ARCHITECTURE

CODE: CS/PC/CA14

CREDITS: 4

L T P: 4 1 0

TOTAL TEACHING HOURS: 65

OBJECTIVE

- To introduce concepts of structures and operations of Computer Systems to Students.

Unit 1

(12 Hrs)

Basic structure of Computers

Functional Units; Basic Concepts, Bus Structures, Software Performance; Memory locations & addresses; Memory operations; Instruction and instruction sequencing; addressing modes; assembly language; Basic I/O operations.

Unit 2

(13 Hrs)

Arithmetic operations

Addition and subtraction of signed numbers; Design of fast adders; multiplication of positive numbers; signed operand multiplication and fast multiplication; Integer division; floating point numbers and operations.

Unit 3

(20 Hrs)

Processing Unit and Memory Organization

Introduction, Stack organization, Instruction formats, Pipe line: Arithmetic pipe line, Instruction pipe line.

Memory: RAM/ROM, Main memory, Auxiliary memory, Associative memory, Cache memory, Virtual memory.

Unit 4

(10 Hrs)

Computer Peripherals and Large Computer System

Input devices, output devices, serial communication links, asynchronous transmission, synchronous transmission and standard communication interfaces.

Large Computer Systems

Forms of parallel processing, array processors, structures of general purpose multiprocessors, interconnection networks.

Unit 5

(10 Hrs)

I/O organization

Accessing I/O devices; Interrupts; Direct Memory Access; Buses; Interface Circuits.

BOOKS FOR REFERENCE

Hamacher, Carl, Zvonko Vranesic and Safwat Zalky. Computer Organization. 5th ed. New Delhi: Mc Graw Hill, 2002.

John, Hayes Computer Architecture & Organization. 3rd ed. New Delhi: McGraw Hill, 1998.

Morris, Mano M. Computer System Architecture. 3rd ed. New Delhi: Prentice Hall India, 2004.

William, Stallings Computer organization & Architecture-Design for Performance. 6th ed. New Delhi: Pearson Education, 2003.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20 : Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30 : To answer six out of eight questions
(At least one question to be set from each unit.)

Section C

5 x 10 = 50 : To answer five out of seven questions
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086

**M.Sc. DEGREE: INFORMATION TECHNOLOGY
SYLLABUS**

(Effective from the academic year 2009 – 2010)

DATABASE SYSTEMS

CODE: CS/PC/DB14

CREDITS : 4

L T P : 3 0 2

TOTAL TEACHING HOURS: 65

OBJECTIVES

- To provide a strong foundation in database technology
- To help students appreciate the need for normalization, transaction processing, concurrency control techniques, recovery procedure

Unit 1

(8 hrs)

Introduction And Conceptual Modelling

Introduction to file and database systems, database system structure, data Models

Unit 2

(15 Hrs)

Relational Model

Relational model, Relational Algebra and Calculus.

SQL: Queries, DDL, DML, Views, Integrity and security.

Relational Database Design, Functional Dependencies and Normalization for Relational Databases (upto BCNF)

Table Partition, Synonym, Sequences

Indexes - Unique, Composite.

Unit 3

(15 Hrs)

Data Storage And Query Processing

Advanced SQL constructs; GROUP BY and HAVING, ORDER BY, UNION, NULL

Aggregate Functions; Characteristics for aggregate functions, Count(*), AVG, SUM, MAX and Min, COUNT, Subqueries, Joins, Views

Single Row Functions, Group functions

Unit 4

(17 Hrs)

PL/SQL Blocks

PL/SQL, Architecture of PL/SQL, Data types and their usage, control structures, Pre defined exception and User defined exceptions, Cursors and cursor management, Procedures and Function.

Data base triggers, parts of a trigger, Types of Triggers.

Connecting Oracle with Visual Basic and inserting , deleting, modifying and displaying the records in VB using queries

Unit 5

(10 Hrs)

Current Trends

Object Oriented Databases; OO data Model, Features of OOP; Abstract data types; Varying Arrays, Nested relations, Inheritance Reference Types, Distributed Databases, Homogenous and Heterogeneous, distributed data storage, schema, querying and transformation.

BOOKS FOR STUDY & REFERENCE:

Koch, George and Kevin Loney. Oracle 8 The Complete Reference,..New Delhi:Tata Mc Graw Hill,1998.

Schilberschatz, Abraham ,Henry F. Korth and S. Sudharshan.Database System Concepts. 5th ed. Singapore: Mc Graw Hill,2006.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration -1½hrs

Practical - 50 marks Duration -1½hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

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M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 -2010)

NETWORK MANAGEMENT AND ADMINISTRATION

CODE: CS/PC/NA14

CREDITS : 4

L T P : 4 10

TOTAL TEACHING HOURS: 65 OBJECTIVES

- To expose students to technical concepts of network
- To help students to install and manage a networking operating system
- To understand the various tools for managing a network effectively

Unit 1

(12 hrs)

Network Essentials

Introduction, Uses of Computer Networks, Network Hardware-LAN,MAN,WAN; Network Software – Protocol Hierarchies, Design issues for the layers, Connection Oriented and Connectionless services; Network Topology, Reference Models - The OSI model, TCP/IP Reference Model, Comparison of the OSI and TCP Reference Model; Transmission Media, Basic elements in networking, Networking Interface Boards,

Unit 2

(10 hrs)

Server Planning

Introduction to Windows Server , Installation, Hardware requirements, Installing from CD, Windows Server 2003 User interface – First boot, The Desktop, Task bar, Folder Behaviour and views

Unit 3

(12 hrs)

Management Tools

Defragmentation, Disk Cleanup, Printing – Printing Basics, Installing local printers, haring printers, Printing to a file ,Printing from DOS, File System and functions, FAT and FAT32,NTFS Compression, Disk Quotas, Understanding User accounts, Passwords, Disaster Planning and recovery, Backup.

Unit 4

(16 hrs)

Networking with TCP/IP

The ins and outs of TCP, Installing and configuring TCP/IP, TCP/IP tools – Ping, Tracert, IPconfig, Understanding DNS, Introduction to the Domain Name System, Client Networking Service, Windows Client Networking service, Understanding Active Directory, Active Directory Structure

Internet Protocol Address -Introduction, Addresses for the virtual net, IP Addressing Scheme, IP address Hierarchy, Classes, Computing the class, Classes and Dotted Decimal Notation, Division of the Address Space, Authority of Addresses, Special IP addresses, Routers and the IP addressing Principle- Subnetting, Introduction to IPV6.

Unit 5

(10 hrs)

Wireless and Mobile Networks

Introduction, Wi-Fi:802.11 Wireless LANS-The 802.11 architecture,802.15 and Bluetooth,,Cellular internet access,Mobility Management :Principles,Need for Wireless LAN,Wireless Vs Wired LANS,Advantages and disadvantages of wireless LANs,Use of Wireless LAN applications and future of Wireless LANs.

* Workshop on Windows Server will be conducted for the students. (5 hrs)

BOOKS FOR STUDY

Comer, Douglas E. Computer Networks and Internets, 2nd ed. New Delhi: Pearson Education Asia, 2003.

Ivens, Kathy. The Complete Reference - Windows Server 2003. New Delhi: McGraw Hill, 2003.

Kurose, James F. Computer Networking, 3rd ed. New Delhi: Pearson Education, 2006.

Tanenbaum, Andrew S. Computer Networks, 3rd ed. New Delhi: Pearson Education, 2006.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

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M.Sc. DEGREE - INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009-2010)

WEB PROGRAMMING

CODE: CS/PC/WP14

CREDITS : 4

L T P : 3 0 2

TOTAL TEACHING HOUR: 65

OBJECTIVES

- To train students to develop more comprehensive websites
- To expose students to some of the advanced web programming languages
- To enhance the students' knowledge with respect to website development

Unit 1 (8 hrs)

Introduction

Basic HTML – Text – Hyperlinks - Formatting – Lists – Tables – Using Colors and Images – Frames - Multimedia Objects – Forms

Unit 2 (12hrs)

JavaScript

What is Dynamic HTML – JavaScript Basics – Variables – String Manipulation – Mathematical Functions – Expressions - Functions - Operators - Control Structures and Looping

Unit 3 (15hrs)

Objects in JavaScript

Data and Objects in JavaScript –Regular Expressions - Exception Handling – Built in Objects – Data Validation – Rollovers - Moving Images - Text-only menu system

Unit 4 (15 hrs)

Introduction to PHP

What is PHP? – Why choose PHP? – Basic PHP Script – print() Function – Comments – Combining HTML and PHP – Variables – Data Types – Operators and Expressions – IF statement – Switch statement – Loops – while – do-while - for – Nesting loops – Functions – Defining and Calling functions – User-Defined Functions – Arrays

Unit 5 (15 hrs)

Data Access using PHP

Script to acquire user input – GET and POST transactions – Redirecting the User – file Upload Forms and Scripts – Connecting to the Database server – Selecting a database – Adding data to a table – Changing data – Sending Mail from PHP scripts.

BOOKS FOR STUDY

Bates, Chris, Web Programming, 2nd ed. New Delhi: Wiley-India Publications, 2004.

Wagner and Wyke, Javascript Unleashed, New Delhi: Techmedia Publications, 2000.

Zandstra, Matt, SAMS Teach Yourself PHP 4, New Delhi: Techmedia Publications, 2007.

BOOKS FOR REFERENCE

Goodman Danny, Eich, Brendan and Morrison, Michael, Java Script Bible, 4th ed. New Delhi: Paperback Publications, 2004.

Powell, Thomas, HTML The Complete Reference, 2nd ed. New Delhi: Paperback Publications, 2003.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration - 1½hrs

Practical - 50 marks Duration - 1½hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

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M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

ADVANCED PROGRAMMING TECHNIQUES

CODE: CS/PE/AT13

CREDITS: 3

L T P : 2 0 2

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to those students who have done C programming in their undergraduate study.

OBJECTIVES

- To introduce students to concepts like pointers & dynamic memory allocation
- To introduce file handling concepts

Unit 1

(8 Hrs)

Arrays

Definition- Initialization – String and character array – sorting array – two dimensional array - String processing using arrays – common string functions

Functions

Introduction, User defined functions, local and global variables – return statement – math library functions – recursion – command line arguments.

Unit 2

(8 Hrs)

Structure and Union

Definition – declaration – period operator - structure operations - array of structures – arrays within structures – structures within structures – structures and functions

Unit 3

(10 Hrs)

Pointers

Pointer Operators – declaring a pointer variable- passing pointers to a function – pointers and arrays – array of pointers – pointers and strings –Operation of pointers– structures and pointers

Dynamic Memory Allocation

malloc, calloc, realloc, free, self referential structures.

Unit 4

(18 Hrs)

Linked List- Singly-linked list, Doubly-linked list and Circularly-linked list, Stacks- Infix, prefix, postfix, Queues, Binary tree, tree traversals.

Unit 5

(8 Hrs)

C Preprocessor

#define, #if, #elif, #else, #endif, #ifndef, #undef, #ifdef, #include
Bitwise Operators and Masking

File Management

FILE datatype – opening – closing file – operations on files – random access files -
Structures and files – fread, fwrite. File system functions.

BOOKS FOR STUDY

Kernighan, Brian W. and Ritchie, Dennis. C Programming Language. 2nd Ed. Prentice Hall of India, 1998.

BOOKS FOR REFERENCE

Kamthane, Ashok N. Programming With Ansi And Turbo C. 2nd Ed. New Delhi: Pearson Education, 2007.

Kanetkar, Yashwant. Understanding Pointers in C. 5th Ed. New Delhi: BPB Publications, 2003.

Schildt, Herbert. C-The Complete Reference. 4th Ed. New Delhi: Tata McGraw Hill Publication, 2000.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 30 marks Duration -1 hr
Practical - 70 marks Duration -2 hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions
(Atleast One question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

C PROGRAMMING

CODE : CS/PE/CP13

CREDITS : 3

L T P : 2 0 2

TOTAL TEACHING HOURS : 52

ELIGIBILITY

- Offered to first time learners of 'C Programming'.

OBJECTIVES

- To introduce students to basic concepts of programming
- To expose students to special features of procedural languages

Unit 1

(10 hrs)

Introduction

Introduction to Programming Languages, Language classification, Basic elements of languages, Characteristics of computer programs, Stages of program development, Structured Programming, Features of a 'C program'.

Operators and Expressions

Character Set, Identifiers and Keywords, Data Types, Constants, Variables, Declarations, Expressions, Statements, Symbolic Constants.
Operators - Arithmetic Operators, Unary Operators, Relational and Logical Operators, Assignment Operators, Conditional Operators

Unit 2

(10 hrs)

Control Statements

Methods of Data Input and Output Control statements, Subroutines, Iterative and conditional statements

Arrays and Functions

Arrays: Single & Multidimensional
String Manipulation using String functions
Functions - Accessing, Arguments, Prototypes; Recursion

Unit 3**(10 hrs)****Pointers**

Pointers - Declaration, Passing Pointers to Functions, Operations on Pointers, Arrays of Pointers.

Unit 4**(11 hrs)****Structure and Union**

Definition, Processing, User defined Data type, Structures and Pointers, Passing Structures to a Function, Self -Referential structures, Unions

Unit 5**(11 hrs)****File Management**

Data Files - Opening and Closing a Data File, Creating a Data File, Processing a Data File.Updating the file. File functions: fread(), fwrite() ,fprintf(), fscanf(), fseek(),fgetc(), fputc() and ftell().

BOOK FOR STUDY:

Kamthane, Ashok N. Programming With Ansi And Turbo C. 3rd Ed.New Delhi: Pearson Education, 2007

BOOKS FOR REFERENCE:

Kanetkar ,Yashwant. Understanding Pointers in C. 5th ed. New Delhi:BPB Publications,2003

Kernighan, Brian W. and Ritchie, Dennis. C Programming Language. 2nd ed. New Delhi:Prentice Hall of India,1998

Seshasayee, Ananthi and Seshasayee, J G .Programming Language C with Practicals. Chennai: Margham Publications, 2005.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 30 marks Duration -1 hrs

Practical - 70 marks Duration -2 hrs

Theory**Section A**

5 x 2 = 10 : Five questions to be answered.
(One questions to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions
(Atleast One questions to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

GEOGRAPHICAL INFORMATION SYSTEM

CODE: CS/PE/GI13

CREDITS: 3

LTP: 2 0 2

TOTAL TEACHING HOUR: 52

ELIGIBILITY

- Offered to those who have knowledge of Graphic Applications at their undergraduate level

OBJECTIVES

- To train students in Geographical Information System using a tool
- To provide students an opportunity to pursue skills and applications in GIS.

Unit 1

(8 Hrs)

Introduction to AutoCAD

Introduction to graphics, what is CAD, File handling commands, drawing and Editing commands
Layers, Layer properties manager, Hatching, Blocks, creation and usage, Digitizing MAP
How GIS works? What is special about GIS? Relating information to various sources, Data capture, Data integration, Data structures and modeling.

Unit 2

(8 Hrs)

Applications of GIS

Map making, Site selection, Emergency response planning, simulating environmental effects, Graphics display techniques, Data structures and modeling; GIS data sources, collection methods, Planning and implementing GIS.

Unit 3

(16 Hrs)

Mastering AutoCAD Map

Digitizing Maps, Cleaning up operations, Attaching Data-Object data, Document data and Database information, Querying, adding Topology and GIS analysis using topologies; Introduction – other GIS softwares.

Unit 4

(10 Hrs)

Satellite Remote Sensing

Remote sensing satellites- satellite data - GPS – Functional segments of GPS, working principles of GPS, Differential GPS

Unit 5

(10 Hrs)

Modern Trends of GIS

Introduction, Local to global concept in GIS, Increase in dimensions in GIS, Linear to Non-linear techniques in GIS, development in relation between Geometry and Algebra in GIS, Development of common techniques in GIS, integration of GIS and remote sensing, integration of GIS and multimedia, 3D GIS, integration of 3D GIS and web GIS, 4D GIS and Real-time GIS, Mobile GIS, Collaborative GIS (CGIS)

BOOKS FOR REFERENCE

Bhatta, B. Remote Sensing and GIS. New Delhi: Oxford University Press, 2008.

Davis, David. E. GIS for Everyone. US: ESRI Publications, 2003.

Guha, Pradip Kumar. Remote Sensing for the Beginner. 2nd ed. Hyderabad: East-West Press, 2008.

Heywood and Others. An Introduction to GIS. 2nd ed. New Delhi: Pearson Education Private Ltd, 2003.

Korte, George B. The Geographical Information Systems Book. 5th ed. USA: Onword Press Network, 2000.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks

Duration -1½hrs

Practical - 50 marks

Duration -1½hrs

Theory

Section A

**5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)**

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE(AUTONOMOUSE), CHENNAI - 600086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009-2010)

MULTIMEDIA SYSTEMS

CODE: CS/PE/MS13

CREDITS: 3

L T P: 2 0 2

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to first time learners of Multimedia.

OBJECTIVES

- To introduce the technique of image processing and animation to students.
- To equip them with the tools for making an interactive presentation.
- To learn the concepts of Sound and Video editing

Unit 1

(4 Hrs)

Introduction

Multimedia and hypermedia, Multimedia for the web. Need for Compression, File formats- Resolution, Bit depth, Color theory and color models.

Unit 2

(12 Hrs)

Image Editing

Image manipulation, Palettes, layers, working with layers, Correction, Special Effects, plug-ins & Filters. Designing Collage, Tool: Photoshop

Unit 3

(12 Hrs)

Animation

Animation for the web, Banners, multimedia presentations, Tweening and its types- the power of layers- learning about symbols- Basic Action Scripting, , Publishing, Shock Wave Files, Tool : Flash.

Unit 4**(12 Hrs)****Authoring**

Stage- Score- Property inspector- Cast window- Control panel- Key frames and Layers -Color- tempo- and transitions- Animations-Film Loops- Markers and Navigation- Behaviors and basic lingo- Adding Interactivity - adding audio and video- Packaging Movies for Distribution.Creation of Projectors, Basic Lingo Scripting, Publishing, Tool: Director.

Unit 5**(12 Hrs)****Sound and Video**

Sound recording and editing, Effects menu and Process menu –Basic Editing with Sound Forge- Video Standards Basic Video editing with Premiere, Adding transitions- Motion and Video effects

BOOKS FOR REFERENCE

McClelland, Deke. Photoshop CS 2 Bible. USA: Wiley Publishing Ltd, 2005.

Parekh, Ranjan. Principles of Multimedia. New Delhi: Tata McGraw Hill Publishing, 2006.

Reinhardt, Robert, and Warrenlantz, Jon. Flash MX Bible. India: DG Books, 2006.

Rnyquise , John, and Mortin, Robert. Director MX and lingo Bible. USA: Wiley Publishing Ltd, 2004.

Vaughan, Tay. Multimedia Making It Work. 4th ed. New Delhi: Tata McGraw-Hill Publishing, 2001.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Practical - 100 marks

Duration -3 hrs

STELLA MARIS COLLEGE (AUTONOMOUS) – CHENNAI 600 086

M. Sc. DEGREE (INFORMATION TECHNOLOGY)

SYLLABUS

(Effective from the academic year 2009 -2010)

BUSINESS ENGLISH CERTIFICATE

CODE : CS/PE/BE23

CREDITS : 3

L T P : 3 1 0

TOTAL TEACHING HOURS : 52

OBJECTIVES OF THE COURSE

- The Business English Certificate Course aims at improving the four language skills - Reading, Writing, Listening and Speaking.
- To train students to arrange meetings, appointments, seminars and to make presentation.

Unit 1 (15 hrs)
Reading

- 1.1 Understanding short notices and messages.
- 1.2 Detailed comprehension of factual material.
- 1.3 Interpreting visual information.
- 1.4 Reading for gist and specific information
- 1.5 Understanding of text structure - newspaper or magazine articles, advertisements or leaflets.

Unit 2 (12 hrs)
Writing

Internal communication - Message, Memo or E-mail.

Unit 3 (12 hrs)
Listening

- 3.1 Specific information
 - 3.1.1 Short conversations
 - 3.1.2 Monologues
 - 3.1.3 Interviews
 - 3.1.4 Discussion between 2 or 3 speakers

Unit 4 (13 hrs)
Speaking

- 4.1 Conversation between the interlocutor and each candidate
- 4.2 A mini - presentation by each candidate on a business theme.
- 4.3 Two-way conversation between candidates.

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE - INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

SOFTWARE ENGINEERING

CODE: CS/PE/SE23

CREDITS: 3

L T P: 3 1 0

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to students who have not done undergraduate course in Computer Science

OBJECTIVES

- To enable the students to understand user conceptual models and development of better specifications
- To expose them to the Improvement in design concepts and reusable code
- To facilitate the students with the specification of interface and confirm specification through mockups.

Unit 1

(11 Hrs)

Introduction

Software Engineering paradigms - Waterfall life cycle model, spiral model, prototype model, Agile Model, 4th Generation techniques - Planning - Cost estimation - Organization structure - Software project scheduling

Unit 2

(10 Hrs)

Software Analysis and Design

Risk analysis and management - Requirements and specification - Rapid prototyping. Abstraction - Modularity - Software architecture - Cohesion, coupling - Various design concepts and notations - Real time and distributed system design - Documentation -Dataflow oriented design - Jackson system development - Designing for reuse -Programming standards.

Unit 3

(10 Hrs)

Software Metrics and Software Quality Assurance

Scope - classification of metrics - Measuring Process and Product attributes - Direct and indirect measures – Metrics for software quality –Integrating metrics within the software process, Software Quality Assurance – Quality concepts – The Quality movement- Software Quality Assurance – Software Reviews – Formal Technical Reviews – Formal Approaches to SQA – Statistical Quality Assurance – Software Reliability – The SQA Plan – Quality Standards.

Unit 4**(11 Hrs)****Software Testing and Maintenance**

Software testing fundamentals - Software testing strategies - Black box testing, White Box testing, System testing - Testing tools - Test case management – Software Maintenance organization -Maintenance report - Types of maintenance.

Unit 5**(10 Hrs)****Software Configuration Management(SCM) & Case Tools :**

Need for SCM - Version control - SCM process - Software configuration items -What is case? – Building block for case- Taxonomy - case repository –Integrated case and Architecture - Features.

BOOK FOR STUDY

Pressman S Roger, Software Engineering A Practitioner Approach .5th ed. New Delhi: Tata McGraw Hill India. 2007

BOOKS FOR REFERENCE

Fairley E Richard, Software Engineering Concepts. 5th ed. New Delhi: Tata Mc Graw Hill India, 2000.

Sommerville Ian, Software Engineering, 8th ed. New Delhi: Pearson Education, 2000.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)**Section A**

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

SECURITY ISSUES IN INFORMATION TECHNOLOGY

CODE: CS/PE/SI23

CREDITS: 3

L T P: 3 1 0

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to Computer Science Graduates

OBJECTIVES

- To introduce the scope, managerial and technical aspects of Information Security.
- To provide exposure to the concepts of Security Policies.

Unit 1

(10 Hrs)

The need for security

Introduction, Business needs, Attacks- Malicious Code, Hoaxes, Back Doors, Password crack, Brute Force, Dictionary, DoS, Spoofing, Man-in-the-middle, Spam, Mail Bombing, Sniffers, Social Engineering, Timing Attack.

Firewalls and VPNs

Introduction, Physical Design, Firewalls, Protecting Remote Connections.

Intrusion Detection & Access Control tools

Introduction, IDSs, Honey pots, Honey Nets and Padded Cell Systems, Scanning and Analysis tools, Access Control Devices.

Unit 2

(10 Hrs)

Secure System Design

Understanding threats – Defacement, Infiltration, Phishing, Pharming, Insider threats, Click Fraud, Data theft and Data Loss, Designing-in Security - Windows-98, Internet, Turtle Shell Architectures, Convenience and Security, SimpleWebServer code – HTTP, Code walkthrough, Security in software requirements – Specifying error handling requirements, Sharing Requirements with Quality Assurance, Handling internal errors securely, Including validation and Fraud checks, Writing measurable security requirements.

Unit 3

(12 Hrs)

Secure Design Principles

The Principle of Least Privilege, Defense-in-Depth - Prevent, Detect, Contain, and Recover, Don't Forget Containment and Recovery, Password Security, Diversity-in-Defense, Securing the Weakest Link - Weak Passwords, People, Implementation Vulnerabilities.

Secure Programming Techniques

Worms – Morris, CERT, Code Red, Nimda, Blaster and SQL Slammer. Buffer overflow – Anatomy, safe string libraries, additional approaches, performance, Heap based overflows.

Unit 4

(10 Hrs)

Client-State Manipulation

Web Site case study - Attack Scenario, Solutions, Using HTTP POST instead of GET, Cookies, JavaScript.

SQL Injection

Attack Scenario, Solutions - Why Blacklisting Does Not Work, Whitelisting - Based Input Validation, Escaping, Second Order SQL Injection, Prepared Statements and Bind Variables, Mitigating the Impact of SQL Injection Attacks.

Unit 5

(10 Hrs)

Password Security

A Strawman Proposal, Hashing, Offline Dictionary Attacks, Salting, Online Dictionary Attacks, Additional Password Security Techniques - Strong Passwords, “Honeypot” Passwords, Password Filtering, Aging Passwords, Pronounceable Passwords, Limited Login Attempts, Artificial Delays, Last Login, Image Authentication, One-Time Passwords.

BOOKS FOR STUDY

Michael, E. Whitman and Herbert, J., Mattord. Principles of Information Security. 2nd ed. Boston:Course Technology, 2007.

Neil, Daswani, Christopher, Kern, and Anita, Kesavan. Foundation of Security, What Every Programmer Needs to Know. California:A Press,2007

BOOKS FOR REFERENCE

Gallagher, Tom, Bryan Jeffries and Lawrence Landauer. Hunting Security Bugs. Washington: Microsoft Press, 2006.

Gary, McGraw. Software Security: Building Security In. New Delhi: [Addison-Wesley Professional](#), 2006.

Peltier, Thomas R. Information Security Policies and Procedures, A Practitioner’s Reference. 2nd ed. Florida:CRC Press, 2004.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

WEB TECHNOLOGIES

CODE: CS/PE/WT23

CREDITS : 3

L T P : 2 0 2

TOTAL TEACHING HOURS : 52

ELIGIBILITY

- Offered to the first time learner of Multimedia and Scripting

OBJECTIVES

To impart an understanding of fundamental concepts of Web technologies with exposure to Multimedia Software and Scripting language. To learn the basics of

- Multimedia using PhotoShop and Flash.
- Scripting using HTML and VBScript.

Unit 1

(5 hrs)

Introduction

Usage of Multimedia in designing web pages: Definition of multimedia - Applications of multimedia - Platforms of multimedia – File Formats - need for Compression – packaging movies for web – streaming – concepts of uploading.

Unit 2

(15 hrs)

Image Editing

Photoshop: Starting to know the work area - Introduction to various tools: palettes – layers - working with layers - color theory - painting and editing the images – filters - adding text, simple image repair techniques.

Unit 3

(10 hrs)

Animation

Flash: Work environment – Stage - drawing tools and their modifiers - basic drawing techniques – Simple animation, text animation and banners – Timeline - symbols - Tweening and its types - libraries

Unit 4**(10 hrs)****HTML**

Introduction – Markup Language- Editing HTML – Headers – Text styling – Linking – Images – Formatting - Unordered List- Ordered List – Basic HTML tables – Forms- Meta tag- Frames

Unit 5**(12 hrs)****VBScript**

Introduction to VBScript – Variables, Functions and Procedures, Conditional statements, Looping – Client Side validation

BOOKS FOR STUDY

Powell, Thomas A. HTML The Complete Reference. New Delhi: Tata McGraw Hill, 2001.

Reinhardt, Robert and Dowd, Snow. Macromedia Flash 8 Bible. New Delhi: John Wiley Publications, 2006.

Schwarz, Ron and Malluf, Ibrahim. The Most Complete Reference Special Edition using VBScript. New Delhi:Que Corporation, 2001.

Shalini, and Gupta, Aditya. Photoshop CS2 in Simple steps. New Delhi: Dreamtech Press, 2006.

Vaughan, Tay. Multimedia Making It Work. 4th ed. New Delhi: Tata McGraw-Hill, 2001.

BOOKS FOR REFERENCE

McClelland, Deke and Fuller, Laurie Ulrich. Photoshop CS2 Bible. New Delhi:John Wiley Publications, 2005.

Powell, Thomas A. HTML The Complete Reference. New Delhi: Tata McGraw Hill, 2001.

Robert, W.Sebesta. Programming the World-Wide Web. New Delhi: Pearson Education, 2009.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration -1½hrs

Practical - 50 marks Duration -1½hrs

Theory**Section A**

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE (AUTONOMOUS) – CHENNAI 600 086

M. Sc. DEGREE (INFORMATION TECHNOLOGY)

SYLLABUS

(Effective from the academic year 2009 -2010)

ALGORITHMS AND DATA STRUCTURES

CODE : CS/PC/AD24

CREDITS : 4

L T P: 4 1 0

TOTAL TEACHING HOURS : 65

OBJECTIVES

- To bring problem solving skills and methodologies.
- To introduce standard Data Structures and Algorithms.
- To initiate the implementation of the Data Structures and Algorithms.

Unit 1

(13 Hrs)

Introduction

Introduction to algorithm - Basic Concepts of Algorithms - The basic steps in the complete development of an algorithm - Analysis and complexity of an algorithm.

Problem Solving – Lists, Stacks And Queues

Problem solving techniques and examples – Abstracts Data Type (ADT) – The List ADT – The stacks ADT – The Queue ADT

Unit 2

(16 Hrs)

Trees

Preliminaries- Binary Tree – The Search Tree ADT- Binary Search Trees- AVL Trees- Tree Traversals – B-trees

Unit 3

(13 Hrs)

Hashing And Priority Queues

Hashing – General idea – Hash Function – Separate Chaining – Open Addressing – Rehashing- Extendible Hashing – Priority Queues (Heaps)- Model – Simple Implementations – Binary Heap –Application of Priority Queues

Unit 4

(11 Hrs)

Sorting

Preliminaries – Insertion sort - Shellsort - Heapsort- Mergesort – Quicksort- External Sorting

Unit 5

(12 Hrs)

Graphs

Definitions – Topological sort- shortest – Path Algorithms- Minimum Spanning Tree- Application of Depth-First search

BOOKS FOR STUDY

Dromey, R.G. How To Solve It By Computer, 3rd ed. New Delhi: Prentice Hall of India, 2002.

Weiss, M.A. Data structure and Algorithm Analysis in C, 2nd ed, New Delhi: Pearson Education Asia, 2002.

BOOKS FOR REFERENCE

Hopcroft, E, Aho, J, and Ullman, J.D. Data Structure and Algorithm, 3rd ed. New Delhi: Pearson Education Asia, 1983.

Kernighan, Brian, W, and Pike, Rob, The Practicals of Programming, 3rd ed. New Delhi: Pearson Education Asia, 1999.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20 : Ten questions to be answered.
(Two questions to be set from each unit)

Section B

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Section C

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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

OBJECT ORIENTED PROGRAMMING - I

CODE: CS/PC/OP24

CREDITS : 4

L T P : 3 0 2

TOTAL TEACHING HOURS : 65

OBJECTIVES

- The course aims to impart Java programming knowledge and skills for developing web-based applications using object-oriented approach
- To expose students to new concepts such as Packages, Interfaces , Exceptions and Threads .

Unit 1

(12 Hrs)

Introduction

Overview of Java- classes and objects- method overloading, constructor, constructor overloading, use of static with data and methods, usage of final with data , method and classes, garbage collection, access control, recursion, nested classes and inner classes.

Unit 2

(12 Hrs)

Inheritance and Interfaces

Concepts, Inheritance in java, usage of super, method overriding, abstract classes, dynamic method dispatch. Packages – concept, import keyword, classpath – creating and accessing packages. Difference between classes and interfaces – application of interfaces, multiple inheritance, extending and initializing fields in interfaces.

Unit 3

(18 Hrs)

Exception Handling and Multithreading

Exception handling – concepts, types of exceptions, usage of try, catch, throw, throws, finally. Concept of multithreading, difference between process and threads, creating multiple threads using Thread class and Runnable interface, thread priorities, thread synchronization, inter thread communication, deadlocks.

java.util Introduction to String, Wrapper classes, Collections

java.io Introduction to input output in java. Working with character streams and byte streams.

Unit 4**(15 Hrs)****Applets, AWT and Event handling**

Applets – concepts, life cycle of applet. AWT Components – Container, Panel, Window, Frame, AWT controls, layout managers – Event classes, event listeners, handling mouse and keyboard events, adapter classes.

Unit 5**(8 Hrs)****JDBC Connectivity**

Jdbc:Odbc connectivity- setting up a database, using tables, establishing connection, getting data from a table, PreparedStatements, DatabaseMetaData, ResultSetMetaData

BOOKS FOR STUDY:

Dietal, Harvey & Paul Dietal, Java – How to Program, 6th ed. New Delhi: Prentice Hall of India, 2005.

Horton, Ivor, Beginning Java 2. New Delhi: Wiley Dreamtech India Ltd, 2005.

Schildt, Herbert, Java 2 Complete Reference. 5th ed. New Delhi: Tata Mc Graw Hill, 2002.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration - 1½hrs

Practical - 50 marks Duration - 1½hrs

Theory**Section A**

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)
OPERATING SYSTEMS

CODE : CS/PC/OS24

CREDITS : 4

L T P : 4 1 0

TOTAL TEACHING HOURS : 65

OBJECTIVES

- To provide a clear description of the concepts that underlie operating systems
- To have a through knowledge of Process management, Storage management , I/O and File Management.
- To provide hands-on experience to Linux Operating Systems

Unit 1

(11 hrs)

Operating Systems – An Overview

What is an OS? - Mainframe systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Handheld Systems.

Operating-System Structures

System Components – Operating-System Services – System Calls – System Programs – System Structure

Unit 2

(18 hrs)

Processes

Process Concept – Process Scheduling – Operations on Processes – Cooperating Process Interprocess Communication-Communication in Client-Server Systems.

Threads

Threads – Overview – Multithreading models – Threading issues

CPU Scheduling

CPU Scheduling – Basic Concepts – Scheduling Criteria – Scheduling Algorithms.

Unit 3

(11 hrs)

Process Synchronization

The Critical-Section Problem – Synchronization Hardware – Semaphores – Classic problems of Synchronization – Critical regions – Monitors.

Deadlocks

Deadlocks- System Model – Deadlock Characterization – Methods for handling Deadlocks - Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlock.

Unit 4

(13 hrs)

Memory Management

Memory Management- Background – Swapping – Contiguous Memory allocation – Paging – Segmentation

Virtual Memory

Virtual Memory – Background – Demand Paging – Page Replacement – Allocation of frames – Thrashing.

File System Interface

File System Interface – File Concept – Access Methods – Directory Structure – Tree-Structured Directories-File – System Mounting – Protection-Types of Access-Access Control.

Unit 5

(12 hrs)

File-System Implementation

File System Structure – File System Implementation – Directory Implementation – Allocation Methods.

Input/Output Systems

Kernel I/O Subsystem – Transforming I/O to Hardware Operations.

Mass-Storage Structure

Disk Structure – Disk Scheduling- Disk Management – Swap-Space Management – RAID Structure –Improvement of Reliability via Redundancy- Improvement in Performance via Parallelism

BOOK FOR STUDY

Silberschatz, Abraham and Galvin, Peter Baer and Gagne, Greg. Operating System Concepts.6th ed. New Delhi: John Wiley & Sons (Asia) Pvt. Ltd., 2003.

BOOKS FOR REFERENCE

Deitel, Harvey M.Operating Systems. 2nd ed. New Delhi: Pearson Education Pvt. Ltd, 2002.

Stallings, William. Operating Systems . 6th ed. New Delhi: Prentice Hall of India, 2003.

Tanenbaum ,Andrew.Modern Operating Systems. 6th ed. New Delhi: Prentice Hall of India Pvt. Ltd, 2003.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

XML AND WEB APPLICATION

CODE: CS/PC/XW24

CREDITS : 4

L T P: 3 0 2

TOTAL TEACHING HOURS : 65

OBJECTIVES

- To introduce students to advanced web technologies
- To impart the intricacies of XML to the students
- To train students to develop web applications

Unit 1

(8 hrs)

Introduction

What is XML-Why XML- XML Vs HTML - XML and Database- XML Vs SGML- Creating a XML Document - Basic Rules - Components

Unit 2

(22 hrs)

Structure and Validations

Elements - Entity References - Using Entities - Predefined Entities - Parsed Entities - Internal and External Entities - Comments - Attributes- Types - Lists - Validations - Data Island - Parser - DTD- Building Blocks - Internal and External DTD - Schemas – Types – Complex Type – Simple Type - Restrictions

Unit 3

(8 hrs)

Formatting Styles and Display

XML Related Technologies- Introduction to XHTML - CSS-Definition - Using Style Sheet in XML - XSL-Definition - Understanding Transformation - Creating a XSLT Document

Unit 4

(15 hrs)

Data Access

XMLDOM- Introduction - Accessing the DOM - XMLDOM Objects- The node types - Node object - Node list object - Document object - Element object - Attr object - Text object - CDATA Section object - Comment Object.

Unit 5

(12 hrs)

Links, Addressing and Case Studies

Overview of Xpath and Xpointer: Xpath Queries - OPENXML - OLE DB and ADO Access - XML with SQLServer - Case Studies - Using XML for business data integration - Content Management with XML

BOOKS FOR STUDY

Holzner, Steven, SAMS Teach Yourself XML in 21 days, 3rd ed. New Delhi: Pearson Education, 2004.

Klein, Scott, Professional SQLServer 2005 XML, New Delhi: Wrox Publications, 2005.

Pitts, Natanya, XML Black Book, 2nd ed. New Delhi: Coriolis Technology Press Publication, 2001.

Young, Michael J., XML Step by Step, 2nd ed. New Delhi: Prentice-Hall of India, 2001.

BOOKS FOR REFERENCE

White, Chuck; Quin, Liam; Burman, Linda, Mastering XML, Premium ed. New Delhi: BPB Publications, 2001.

Williamson, Heather, XML Complete Reference, 2001 New Delhi: Paperback Publications, 2001.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration - 1½hrs

Practical - 50 marks Duration - 1½hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

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Section C

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(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

DATA MINING AND WAREHOUSING

CODE: CS/PC/DM34

CREDITS : 4

L T P : 4 1 0

TOTAL TEACHING HOURS: 65

OBJECTIVES

- To introduce to the students the concepts and theories of data mining.
- To equip the students with skills and knowledge necessary for Business Analysis in the industry

Unit 1

(15 Hrs)

Introduction

What is Data Mining? Why is it important? Data Mining – On what kind of data-Data Mining Functionalities-Are all 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 Discretization and Concept Hierarchy Generation

Unit 2

(13 Hrs)

Data Warehouse and OLAP Technology

What is a Data Warehouse? A Multidimensional data Model-Data Warehouse Architecture-Data Warehouse Implementation-From Data Warehousing to Data Mining

Unit 3

(15 Hrs)

Mining Frequent Patterns, Associations and Correlations

Basic Concepts and a Road Map-Efficient and Scalable Frequent Itemset Mining Methods

Classification and Prediction

What is Classification? What is Prediction?-Issues Regarding Classification and Prediction-Classification by Decision Tree Induction-Bayesian Classification-Overview of other classification methods-Overview of Prediction

Unit 4

(14 Hrs)

Cluster Analysis

What is Cluster Analysis? Types of Data in Cluster Analysis- A categorization of various Clustering Methods

Mining Spatial, Text and Web Data

Spatial Data Mining- Text Mining- Mining the World Wide Web

Unit 5

(8 Hrs)

Applications and Trends in Data Mining

Data Mining Applications for Financial Data Analysis-Data Mining for the Retail Industry-Data Mining for Intrusion Detection-Social Impacts of Data Mining.

BOOKS FOR STUDY

Berson, Alex and Smith, Stephen J. Data Warehousing, Data Mining & OLAP. New Delhi: Tata McGraw- Hill, 2004.

Han, Jiawei and Micheline Kamber Data Mining: Concepts and Techniques San Francisco: Morgan Kaufmann Publishers,2002.

BOOKS FOR REFERENCE

Kelly, Sean. Data Warehousing In Action. New Delhi: John Wiley & Sons Inc.,1997.

Kimball, Ralph. The Data Warehouse Life Cycle Toolkit. New Delhi: John Wiley & Sons Inc,1998.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20 : Ten questions to be answered.
(Two questions to be set from each unit)

Section B

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(At least one question to be set from each unit.)

Section C

5 x 10 = 50 : To answer five out of seven questions
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

OBJECT ORIENTED PROGRAMMING – II

CODE: CS/PC/OO34

CREDITS: 4

L T P : 3 0 2

TOTAL TEACHING HOURS: 65

OBJECTIVES

- To introduce students to multi-tier, object-oriented, Web based application
- To enable them to create and implement applications using Servlets, Enterprise JavaBeans

Unit 1

(12 hours)

Overview

Overview of Distributed multitiered Applications, J2EE containers, Packaging, Development Roles, Reference Implementation Software. Setting up a J2EE application. Enterprise Bean, Session Bean, Entity Bean, Message Driven Bean, Life Cycles of Enterprise Beans

Unit 2

(12 hours)

Session Beans

CartEJB Example – Session Bean class, Home Interface, Remote Interface, Helper classes, Running the CartEJB Example
Bean Managed Persistence- SavingsAccountEJB Example, Mapping Table Relationships for BMP, Primary Keys for BMP

Unit 3

(15 hours)

Container Managed Persistence

Creating and running a CMP Bean

Message Driven Bean

Message-Driven Bean class – onMessage(), ejbCreate(), ejbRemove() methods. Creating and running a MDB

Unit 4

(12 hours)

Web Clients and Components

Web Client life cycle, Archives, Configuring web clients, deploying web clients, running web clients, updating web clients.

Java Servlet Technology

What is Servlet? Examples, Servlet Life Cycle, Sharing Information, Initializing a Servlet, Writing Service Methods, Filtering Requests and Responses, Maintaining Client State, Finalizing A Servlet.

Unit 5

(14 hours)

Java Server Pages

What is JSP? Example, Life Cycle of JSP page, Initializing and Finalizing JSP page, Static content, Dynamic content.

JavaBeans Components in JSP Pages

Creating and using JavaBeans componets

JSP Custom Tags

Defining and Using Custom Tags

BOOKS FOR STUDY

Bodoff, Stephaine and Dale Green et al. The J2EE Tutorial. New Delhi: Pearson Education, 2002.

Harms, David. Java Servlets & MySQL. New Delhi: IDG Books India (P) Ltd, 2001.

Hunter, Jason and William Crawford. Java Servlet Programming. 2nd ed. New Delhi: Shroff Publishers and Distributors Pvt. Ltd, 2007.

Rima Patel Sriganesh et al, Mastering Enterprise Java Beans 3.0, New Delhi: Wiley India Edition,2006.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration -1½hrs

Practical - 50 marks Duration -1½hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

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(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS
(Effective from the academic year 2009 – 2010)

OBJECT ORIENTED SYSTEMS DEVELOPMENT USING UML

CODE: CS/PC/OU34

CREDITS: 4

L T P: 4 1 0

TOTAL TEACHING HOURS: 65

OBJECTIVES

- To introduce students about the basic concepts underlying Object-Oriented Systems Development.
- To introduce the comprehensive treatment of the entire system life cycle using Object-Oriented techniques.
- To enable students to use UML for modeling, describing, analyzing and designing an application.

Unit 1

(12 Hrs)

Introduction to Object Oriented Systems Development

Introduction, Two orthogonal views of the software, Object-oriented systems development methodology, what is object orientation?, overview of the unified approach. Object Basics - introduction, an object-oriented Philosophy, Objects, Objects are grouped in classes, Attributes: Object state and properties, Object behavior and methods, objects respond to messages, encapsulation and information hiding, class hierarchy, polymorphism, object relationships and associations, aggregations and object containment.

Object Oriented Systems Development Life Cycle

Introduction, Software Development Process, Object-Oriented Systems Development: A Use-case driven approach.

Unit 2

(15 Hrs)

Methodology and Modeling

Object Oriented Methodologies – Introduction, Survey, Rumbaugh et al. Object Modeling Technique, Booch Methodology, Jacobson et al. Methodologies, Patterns, Frameworks, Unified Approach.

Unified Modeling Language

Introduction, Static and Dynamic Models, Why modeling? Introduction to UML, UML diagrams, UML class diagram, Use case diagram, UML dynamic modeling, Model Management: Packages and model organization, UML extensibility, UML meta model.

Unit 3

(15 Hrs)

Object Oriented Analysis: Use Case Driven

Introduction, Why analysis is a difficult activity? Business object analysis, Use-case driven object oriented analysis - The unified approach, Business process modeling, Use-case model, developing effective communication.

Object Analysis: Classification

Introduction, Classification Theory, Approaches for identifying classes, Noun phrase approach, common class patterns approach, Use-case driven approach, classes, responsibilities and collaborators.

Identifying object relationships, attributes and methods

Introduction, Associations, Super-sub class relationships, A part of Relationships – aggregation, Class responsibility - identifying attributes and methods, Defining attributes by analyzing use cases and other UML diagrams, Methods and Messages.

Unit 4

(13 Hrs)

Object Oriented Design

Introduction, Object Oriented design process, Axioms, Corollaries, Design patterns.

Designing Classes

Introduction, Object Oriented design philosophy, UML object constraint language, Designing classes - the process, Class visibility, Designing classes, Refining attributes, Designing methods and protocols, Packages and managing classes.

Unit 5

(10 Hrs)

Object Storage and Object Interoperability

Distributed objects computing, Object Oriented Database Management System, Object Relational Systems, Multi Database Systems, Designing Access Layer classes.

Designing interface objects

Introduction, User Interface design as a creative process, Designing view layer classes, Macro level, Micro level process, Purpose of a view layer interface, Prototyping the User Interface, Impact of object orientation on testing.

BOOK FOR STUDY

Bahrami, Ali. Object Oriented Systems Development using the Unified Modeling Language. Singapore: McGraw-Hill International Editions, 1999.

BOOKS FOR REFERENCE

Booch, Grady. Object-Oriented Analysis & Design with Applications. 2nd ed. Delhi: Pearson Education, 2006.

Craig Larman. Applying UML and Patterns: An Introduction to Object-oriented Analysis and Design and the Unified Process. 2nd ed. Prentice Hall of India, 2002.

Martin, Fowler and Kendall Scott. UML Distilled. 2nd ed. Addison-Wesley Professional, 1999.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20 : Ten questions to be answered.
(Two questions to be set from each unit)

Section B

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Section C

5 x 10 = 50 : To answer five out of seven questions
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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

VISUAL PROGRAMMING

CODE: CS/PC/VP34

CREDITS: 4

L T P: 3 0 2

TOTAL TEACHING HOURS: 65

OBJECTIVES

- To expose students to concepts of Web Programming using ASP.NET
- To introduce advanced concepts of Web technology and disconnected architecture using VB.NET and ASP.NET.

Unit 1

(10 hrs)

Introduction to VB. Net

Features of ASP.NET, The tool box, The solution explorer, The command window, The server explorer, The properties window, Page Events, Postbacks, .NET framework

Introduction to Windows Applications

Unit 2

(20 hrs)

ASP.NET Web Server Controls

Label, Literal, Textbox, Button, Link button, Image button, hyperlink, Dropdownlist, list box, Checkbox, Radio button, Table, Calendar, Adrotator, Bulleted List, Hidden Field, Validation server controls

Unit 3

(10 hrs)

Collections and lists

Resizing Arrays, Sorting and Finding Objects in Arrays, Array List, Hashtables, Queues and stacks- State Management-Understanding the Session object, Application object, Query strings, Cookies, View state

Unit 4

(15 hrs)

Data Management with ADO.NET Features :

Using the connection object, command object, data reader object, data adapter, dataset

Using Bound list Controls

Grid View, Details View, Form View

Unit 5

Site Navigation

(10 hrs)

Site map path control - Menu Server control-Authorization control – Exception Handling in VB.NET – Packaging and Deploying ASP.Net Applications using XCopy

BOOKS FOR STUDY

Evjen Bill et al. Professional Visual Studio 2005. 3rd ed. New Delhi: Wiley Dreamtech India(P) Ltd, 2005

Evjen Bill et al . Professional ASP.NET 2.0. 3rd ed. New Delhi: Wiley Dreamtech India(P) Ltd, 2005

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Theory - 50 marks Duration -1½hrs

Practical - 50 marks Duration -1½hrs

Theory

Section A

5 x 2 = 10 : Five questions to be answered.
(One question to be set from each unit)

Section B

4 x 5 = 20 : To answer four out of six questions

Section C

2 x 10 = 20 : To answer two out of three questions

(Questions for forty marks towards Section-B and Section-C should be set such that equal weightage is given to all units)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009-2010)

INFORMATION SYSTEMS

CODE: CS/PE/IS33

CREDITS: 3

LTP: 3 1 0

TOTAL TEACHING HOURS: 52

OBJECTIVES

- To introduce students to the various resources of a Business System and their information requirements exposing them to various aspects of managing Information System.
- To make students appreciate the need for controls and securities of Business Information System; to highlight to students the Ethical Issues in practicing IT.

Unit 1

(9 hrs)

Introduction to Information System

System Analysis - Concepts, Design and Development. Tools and Techniques - Information System, Concepts and features. Types of Information System

Unit 2

(9 hrs)

Foundations of Information System

What is MIS?, Elements of MIS, Objectives of MIS, Business and Technology Trends, Process of Management, Functions of Management, Components of MIS.

Importance of MIS

System Analysis, Organization structure, Role of MIS in Decision Making, Implementation, Evaluation and Maintenance of MIS, Role of Computer in MIS.

Unit 3

(12 hrs)

Tools of Information Technology in Business

Internet and Business, Intranet and Extranet in Business, Business Information System, Transaction processing System, Decision Support System, Artificial Intelligent technologies in business, Database Management System, Information system, Communication System

Unit 4

(11 hrs)

Business Enterprise Resources Planning – Overview

Introduction to ERP, Benefits of ERP, ERP modules

Managing Information Technology: Strategic management, Operational management, Centralization and Decentralization Network Management, Management of End User computing, Global Business and IT solutions, Global IT platform, Global Data Issues.

Unit 5

(11 hrs)

Security and Ethical Challenges in Information Technology

Need for controls, Information system control-Input, output, process, storage controls, Physical protection, Biometric, Disaster management, Auditing information system, Business Ethics, Information Ethics, Ethical and societal dimensions of IT, Privacy Issues, Introduction to Cyber Laws, Computer crimes- Role of Hacking, Preventive measures.

BOOKS FOR STUDY

Leon, Alexis. Enterprise Resource Planning. 2nd ed. New Delhi: Tata McGraw Hill Publications, 1999.

O'Brien, James, A. Management Information System. 4th ed. New Delhi: Tata McGraw Hill Publications, 2008.

BOOK FOR REFERENCE

Mittal, R., and N.Kumar, Management Information System.. New Delhi: Anmol Publications Pvt. Ltd, 2004.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc DEGREE (INFORMATION TECHNOLOGY)

SYLLABUS

(Effective from the academic year 2009-2010)

SOFTWARE PROJECT MANAGEMENT

CODE:CS/PE/SP33

CREDITS : 3

L T P : 3 1 0

TOTAL TEACHING HOURS : 52

ELIGIBILITY

- Offered to Computer Science Graduates

OBJECTIVES

- To train the students about concepts in the development of project.
- To give them an exposure to real time management of projects

Unit 1

(8 hrs)

Introduction

Software Project versus other types of project – Problems – Management Control – Stake holders – Requirement Specification – Information and control in organizations.– selection – scope and objectives – project infrastructure – project characteristics – Products and activities – Estimation for each activity – activity risks – Resources – Review – levels of planning. Introduction – strategic assessment – technical assessment – Cost benefit evaluation techniques – Risk evaluation.

Unit 2

(11 hrs)

Choosing a Model

Choosing technologies – Technical plan contests – Choice of process models – Structured methods – Rapid application development – Waterfall model – v-Process model- Spiral model – Software prototyping – Ways of categorizing prototypes – Tools – Incremental Delivery – Selecting process model. Introduction – Problems with over and under estimates – Basis for software estimating – Software effort estimation technique – Expert judgement – Albercht function point analysis – Function points Mark II – Object points – Procedural code oriented approach – COCOMO.Objectives – Project Schedules – Projects and activities – Sequencing and scheduling activities – Network planning models – Formulating a network model – Using dummy activities – Representing lagged activities – Adding time dimension – Forward pass – Backward pass - Identifying the critical path – Activity float – Shortening.

Unit 3**(12 hrs)****Risk Management**

Nature of risk – Managing – Identification – Analysis – Reducing- Evaluating – Z values.

Nature of Resources – Requirements – Scheduling – Critical Paths – Counting the cost – Resource schedule – Cost schedule – Scheduling Sequence .Creating the frame work – Collecting the data – Visualizing the progress – Cost monitoring – Earned value – Prioritizing-monitoring – Change control.

Unit 4**(12 hrs)****Contract Management**

Types of contract – Stages in contract placement – Terms of a contract – Contract Management – Acceptance. Organizational behaviour background – selecting the right person for the job – Instruction in the best methods – Motivation – Decision making – Leadership – Organizational Structures.Importance – Defining – ISO9126 – Practical measures – Product versus process quality management – External standards – Techniques to help enhance software quality.

Unit 5**(9 hrs)****Case Study**

Case study using project management tool

BOOK FOR STUDY

Bob, Hughes and Mike, Cotterell. Software Project Management. 2nd ed. New Delhi: Tata McGraw-Hill Publishers, 2006.

BOOKS FOR REFERENCE

Gopaldaswamy, Ramesh . Managing Global Software Projects. New Delhi: Tata McGraw-Hill Publishers, 2002.

Walker, Royce. Software Project Management.2nd ed. New Delhi: Pearson Education, 2000.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)**Section A**

10 x 2 = 20 : Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30 : To answer six out of eight questions
(At least one question to be set from each unit.)

Section C

5 x10 = 50 : To answer five out of seven questions
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

PARALLEL COMPUTING

CODE: CS/PC/PC44

CREDITS : 4

L T P : 4 1 0

TOTAL TEACHING HOURS : 65

OBJECTIVES

- To enable students to understand concepts of parallel computing and design choices of implementing parallel execution within a single processor and multiprocessor systems.
- To help students to gain knowledge of the state of the art research topics on advanced computing systems.

Unit 1

(10 Hrs)

Parallel computer models

Multiprocessors and Multicomputers: Shared –Memory Multiprocessors-Distributed-Memory Multicomputers-A Taxonomy of MIMD computers. Multivector and SIMD computers: Vector Supercomputers-SIMD Supercomputers. PRAM and VLSI Models

Unit 2

(15 Hrs)

Program and network properties

Conditions of Parallelism: Data and resource Dependencies-Hardware and software Parallelism-The Role of compilers.

Program Partitioning and scheduling: Grain sizes and latency-Grain Packing and Scheduling-Static Multiprocessor Scheduling.

Program flow Mechanisms: Control flow versus data flow-Demand Driven mechanisms-Comparison of flow Mechanisms.

System interconnect Architectures: Network Properties and Routing-Static connection Networks-Dynamic connection Networks.

Unit 3

(10 Hrs)

Parallel Models

Parallel Programming Models : Shared -Variable model – Message-Passing model-Data –Parallel model-Object-Oriented model-Function and Logic models.

Unit 4

(18 Hrs)

Languages and Compilers

Parallel Languages and Compilers: Language Features for parallelism-Parallel Language Constructs-Optimizing Compilers for Parallelism. Dependence Analysis of Data Arrays: Iteration space and Dependence Analysis –Subscript Separability and partitioning-Categorized Dependence Tests. Code Optimization and Scheduling: Scalar Optimization with Basic Blocks-Local and Global Optimizations-Vectorization and Parallelization Models-Code Generation and Scheduling-Trace Scheduling and Compilation. Loop Parallelization and Pipelining: Loop Transformation and Pipelining-Parallelization and Wave fronting-Tiling and Localization – Software Pipelining.

Unit 5

(12Hrs)

Parallel program Development and Environments

Parallel Programming Environments: Software Tools and Environments-Y- P,Paragon, and CM-5 Environments-Visualization and Tuning. Synchronization and Multiprocessing Modes: Principles of Synchronization-Multiprocessor Execution Modes-Multitasking on Cray Multiprocessors. Message Passing Program Development :Distributing the Computation - Synchronous Message Passing-Asynchronous Message Passing Mapping Programs onto Multicomputers:Domain Decomposition Techniques-Control Decomposition Techniques-Heterogeneous Processing.

BOOK FOR STUDY

Kai, Hwang ,Advanced Computer Architecture,New Delhi: Tata McGraw-Hill ,2008

BOOK FOR REFERENCE

Michel, Quinn, J Parallel Computing, Theory and Practice,2nd ed. New York: McGraw-Hill International Edition, 2000.

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

SOFTWARE TESTING

CODE: CS/PC/ST44

CREDITS : 4

L T P : 4 1 0

TOTAL TEACHING HOURS : 65

OBJECTIVES

- To expose students to various types of testing strategies relevant to the industry.
- To give awareness to students about the various software testing tools

Unit 1

(11 hrs)

Software Quality Assurance: An Overview

The Software Crisis - What is Software Engineering? - Why Software Engineering? - Criteria for the success of software projects: Quality – Time - Budget – Relationships - Software Process.

Introduction to Software Testing

What is software testing? Why Software Testing? Testing Fundamentals.

Unit 2

(18 hrs)

Software Testing Process

Verification and Validation-Cost of Quality-Characteristics of Test engineer-Levels of Testing-Testing Approaches: Top down Approach vs Bottom up Approach, Functional testing vs structural testing, Mutation testing, Regression Testing -Types of Testing Black box testing ,white box testing, gorilla testing, beta testing, field trial, performance testing, stress testing, acceptance testing.

Unit 3

(13 hrs)

Defects, Hypothesis and tests : Origin of Defects-Defect Classes, The defect repository and Test design.

Test goals, policies, plans and documentation: Test planning-test plan attachments-test plan components-Preparation of test plan -Preparation of test conditions/scenario - Preparation of test cases

Defect Analysis and Prevention: Processes and defects, History of defect analysis and prevention, support for defect prevention program, Techniques for defect analysis-Defect prevention.

Unit 4

(15 hrs)

Controlling and monitoring Testing Process

Review : types of review, components of review, reporting review and review metrics.

The **testing maturity model** and test process assessment: need for a testing maturity model, TMM structure.

Unit 5

(8 hrs)

Software Metrics and Reports

Test Status Metrics - Unique Metrics – Productivity - Review efficiency - Defect removal efficiency - Complexity Measurement - Size Measurement - Defect Metrics Test Reports - Reporting Tools - Test Report Standards - Statistical Analysis - Documentation

Coverage Analysis: Code coverage, coverage criteria, Basic metrics in code coverage: Statement Coverage, Decision Coverage, Condition Coverage, Multiple Condition Coverage, Condition/Decision Coverage, Modified Condition/Decision Coverage, Path Coverage

Tools & Automation

Introduction to Automation tools -Functional & Regression-Performance-Test Management - Advantages of automation tools -Disadvantages of automation tools-Selecting an automation tool-Framework.

BOOKS FOR STUDY

Burnstien, Illene. Practical Software Testing. New Delhi:Springer International Edition, 2005.

Prasad ,K.V.K.K.Software Testing Tools. NewDelhi: DreamTech Press, 2008.

BOOK FOR REFERENCE

Perry, William. E.Effective Methods for Software Testing. 2nd Ed. NewYork: John Wiley & Sons, 2005

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

M.Sc. DEGREE: INFORMATION TECHNOLOGY

SYLLABUS

(Effective from the academic year 2009 – 2010)

MOBILE COMPUTING

CODE: CS/PE/MC43

CREDITS : 3

L T P : 3 1 0

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to students who have basic knowledge of Computer Architecture and networking at Undergraduate level

OBJECTIVES

- To learn the basics of Wireless, voice and data communications technologies.
- To learn the systems, protocols and mechanisms to support mobility for mobile internet users.
- To study the working principles of wireless LAN and its standards.

Unit 1

(4 Hrs)

Introduction

Pervasive Computing – Applied Pervasive Computing- Pervasive Computing Principles- Information Technology - Home Services – Travel and Business Services – Consumer Services

Unit 2

(12 Hrs)

Devices

Information Access Devices: Handheld Computers - Palm OS Based Devices – Windows CE based Handheld Devices – EPOC based handheld devices – Sub Notebooks – Phones Cellular Phones – Data Transmission Capabilities – Smart Phones – Screen Phones Smart Identification: Smart Cards, Smart Labels, Smart Tokens Embedded Controls: Smart Sensors and Actuators – Smart Applications – Appliances and Home Networking – Automotive Computing Entertainment Systems: Television Systems – Game Consoles

Unit 3

(15 Hrs)

Software

Java: Language Characteristics – Java class Libraries – Java Editions – Micro Edition – PersonalJava and EmbeddedJava – Development tools for Java Operating Systems: Windows CE – Palm OS – Symbian OS – Java Card Client Middleware: Overview – Programming API's – Smart Card Programming- Messaging Components – Database Components Security: The importance of Security – Cryptographic Patterns and Methods Cryptographic Tools – Secure Socket Layer

Unit 4**(12 Hrs)****Connecting the World**

Internet Protocols and Formats: HTTP – HTML – XML – Xforms Mobile Internet: The WAP 1.1 Architecture – Wireless Application Environment 1.1 – WAP 2.0 Architecture i-mode Voice: Voice Technology Trends – Voice on the web – Standardization Web Services: What are web services – Why should one use Web Services – Web Services Architecture – WSDL – UDDI - SOAP – Web Services Security – WSRP Connectivity: Wireless Wide Area Networks – Short Range Wireless Communications – Home Networks Services Discovery: Universal plug and play – Jini – Salutations

Unit 5**(9 Hrs)****Back-End Server Infrastructure**

Gateways: Connectivity Gateways – Palm WebClipping Proxy Server – WAP Gateway – Wireless Gateway – Transcoding – InfoPyramid Framework – ProxiNet Transcoding Gateway – Residential Gateway - Application Servers: Architecture and Components – Oracle9i Application Server – Internet Portals: Portal Functional Overview – Types of Portals – Portal Infrastructure

BOOK FOR STUDY

Hansmann, Uwe, and Merk, Lothar, and Nicklons, Martin S., and Stober, Thomas. Principles of Mobile Computing. 2nd ed. New Delhi: Springer-Verlag, 2003.

Schiller, Jochen. Mobile Communications. 2nd ed. New Delhi: Pearson Education, 2003.

BOOKS FOR REFERENCE

Talukder, Ashoke K, and Yavagal, Roopa R. Mobile Computing. New Delhi: Tata McGraw Hill, 2005

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)**Section A**

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086

**M.Sc. DEGREE: INFORMATION TECHNOLOGY
SYLLABUS**

(Effective from the academic year 2009 – 2010)

ARTIFICIAL NEURAL NETWORKS

CODE: CS/PE/NN43

CREDITS : 3

L T P : 3 1 0

TOTAL TEACHING HOURS: 52

ELIGIBILITY

- Offered to those who have knowledge in programming techniques and mathematics

OBJECTIVES

- To expose students to various types of Neural Network strategies
- To enable students to know the applications of Neural networks and thereby apply the suitable network for a given problem specification.

Unit 1

(6 Hrs)

Introduction To Artificial Neural Networks

Introduction to Artificial Neural Networks, Network Architecture, Setting the Weights, Activation Functions, Learning Methods.

Unit 2

(14 Hrs)

Fundamental Models Of Artificial Neural Networks

Introduction, McCulloch – Pitts Neuron Model, Architecture, Learning Rules, Hebbian Learning Rule, Perceptron Learning Rule, Delta Learning Rule (Widrow-Hoff Rule or Least Mean Square LMS rule), Competitive Learning Rule, Out Star Learning Rule, Boltzmann Learning, Memory Based Learning, Basics of Genetic algorithm

Unit 3

(16 Hrs)

Feed Forward Networks

Introduction, Single Layer Perceptron Architecture, Algorithm, Application Procedure, Perception Algorithm for Several Output Classes, Perceptron Convergence Theorem, Brief Introduction to Multilayer Perceptron networks, Back Propagation Network (BPN), Generalized Delta Learning Rule, Back Propagation rule, Architecture, Training Algorithm, Selection of Parameters, Learning in Back Propagation, Local Minima and Global Minima, Merits and Demerits of Back Propagation Network, Applications

Unit 4

(8 Hrs)

Counter Propagation Networks

Winner Take – all learning, out star learning, Kohonen Self organizing network

Unit 5

(8 Hrs)

Associative memory networks

Types, Architecture, Continuous and Discrete Hopfield Networks, Bidirectional Associative Memory Application :Traveling Salesman Problems using Hopfield Networks

BOOK FOR STUDY

Sivandam, S.N., Sumathi, and Deepa. Introduction to Neural Networks using Matlab 6.0. New Delhi. Tata McGraw Hill Publications, 2006.

BOOKS FOR REFERENCE

Haykins, Simon. A comprehensive foundation to Neural Networks. 2nd ed. New Delhi. Pearson Education, 2008.

Kumar, Satish. Neural Networks – A Classroom Approach. New Delhi. Tata McGraw Hill Publications. 2004

PATTERN OF EVALUATION (End Semester Examination – 3 Hrs.)

Section A

10 x 2 = 20: Ten questions to be answered.
(Two questions to be set from each unit)

Section B

6 x 5 = 30: To answer six out of eight questions.
(At least one question to be set from each unit)

Section C

5 x 10 = 50: To answer five out of seven questions.
(At least one question to be set from each unit)