NORTH MAHARASHTRA UNIVERSITY, JALGAON
Course Structure For MCM
(w.e.f. June 2004)

SEMESTER – I
1.1 Elements of IT
1.2 Internet Fundamentals & web Designing Tools
1.3 DBMS
1.4 Programming in C++
1.5 Accounting Information System
1.6 Practical

SEMESTER – II
2.1 Software Design & Software Quality Memt.
2.2 Oracle / D2k
2.3 Linux
2.4 VC++
2.5 Communication Skill
2.6 Practical

SEMESTER – III
3.1 Java
3.2 Essentials of E-commerce, ERP & Supply Chain Mgmt.
3.3 Business Application & Data Processing
3.4 Data Structure
3.5 VB.Net
3.6 Practicals

SEMESTER – IV
4.1 Java Script, VB Script and ASP
4.2 Introduction j2EE, j2ME
4.3 Management Information System
4.4 Operation Research
4.5 Practical
4.6 Project and Viva-voce

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NORTH MAHARASHTRA UNIVERSITY, JALGAON
Master of Computer Management
M.C.M. Semester-III
Revised Syllabus with effect from June 2005
3.1- JAVA

Introduction To JAVA Environment
What is Java, JVM, The Byte Code, Architecture of JVM, Class loader, Java and Unicode Character of Java Technology, Importance of Internet, Comparison with C++,C

Object Oriented Programming
Class, Object, Data Member, method, constructor, This keyword, Access Controls, Copying object, casting object, native method, garbage collection, Using Static.

Inheritance
Class Inheritance and reusability, Inheritance Data Member, object of Derived Class, deriving and class, base class constructor, final modifier, abstract classes, Innerclass, subclass, Final Class

Polymorphism
Overloading a method, overloading a Constructor, Method Overriding, calling a base class method,

Java – Core Technologies
Interfaces, Problems with Abstract Classes., Extending Interface, Implementing Interface, Advantages.

Package
Package classes, CLASSPATH, Package and directory structure, compling package. accessing a package

Exception Handling
Need Of Exception, Type of Exception, Handing Exception, Define Own Exception, Execution Sequence, Exception Object Try, catch, throw

FILE I/O
Streams. Classes for Input/Output Stream, Define a File, Byte Stream, Character Stream,

Java Based GUI Program
Abstract Window Toolkit
GUI Programming Model, GUI Application Control, java. awt. event* package, Working with graphics, Layout Manager, Draw Backs Model View Architecture, Conpontents (container, panel, frame, button)

Swing Technology
Comparison with AWT, Window control, textbox, label, menu, dilog box (Model Modeless and Standard icons, scroll bar, tabbed buttons, pans)

Applet
Introduction to WEB, Web Server Component, Working with Applet, Incorporating applets with HTML pages, applet method, life Cycle of Applet, Security issue Related to applets

Java Based Tools
Java Archive (JAR). Jar File Format, Jar Utility, Jar and Applet

JDBC
Need of Database, Design of JDBC, Use of JDBC, JDBC Drivers Basic JDBC Programming Concept, Metadata, Executing Queries Mapping Between Java and SQL Datatype, Concept of Connection with Backend.

M.C.M. Semester-III
3.2-Essentials of e-Commerce, ERP & Supply Chain Management
(W.e.f.,June 2005)

UNIT-1 : WHAT IS ELECTRONIC COMMERCE?
1. Fundamentals of Electronics Commerce
2. Traditional Commerce: An Overview
3. Issues Associated With E-Commerce
4. Comparison Between Traditional And E-Commerce
5. Broad View Of E-Commerce

UNIT-2: SECURITY OF E-COMMERCE
1   Introduction & Objectives
2. Security Threats And Solution
3. Techniques And solutions For E-Commerce Security
4. Message Security
5. Methods Of Encryption
6. Fast Cryptography
7. Certificate Authority
8. Enterprise Authentication Using Digital Certificate
9. Few Security Standards For The Internet
10 Shielding The Network using "Firewall"
11. Role Of Virtual Private Network (VPN)
12. Network Security

UNIT- 3: ELECTRONIC PAYMENT SCHEME
1   Introduction & Objective
2. A Look At The Traditional Payment Methods
3   Layered Protocol Model For Electronic Payment
4   A view Of Internet Payment Process
5   An Understanding Of Credit Card Payment Schemes On The Internet
6   Cyber Cash, Veritone and First Virtual Payment Schemes

Online Catalogues
EDI ,E-mail And Micro Transactions
Software Agents

ERP : An Overview
Enterprise : an overview
Benefits of ERP
ERP & Related Technology
Business process Reengineering (BRP)
Data Warehousing
Data Mining
On-line Analytical Processing (OLAP)

ERP ,IMPLEMENTATION
H/W & S/w requirement
ERP Implementation Life Cycle
Implementation Methodology
ERP – Implementation – The Hidden Costs
Organizing the Implementation
Vendors, Consultants & Users
Contract with Vendors, Consultants & Employees
Project Mgmt. & Monitoring
Business Modules In an ERP Package
Finance
Manufacturing
Human Resource
Plant Maintenance
Quality Management
Sales & Distribution
ERP and Internet
ERP & E-Commerce

Case studies of ANY two Organisations

Customer Relationship management

Introduction to CRM – Definition of CRM
Marketing Automation – Enterprise Customer Management – Process – Technology – CRM Areas – Components of CRM – Grouping of Enterprises – Electronic CRM - Need for Electronic CRM – CRM's goal satisfy Customer much more than their competitors Do- CRM Suppliers and Customer Information convergence – Customer relationship management demystified – E-CRM Architecture – Electronic CRM Application – The Electronic CRM Market in India – Major tends of E-CRM – Global Scenario for Electronic CRM – CRM Customer relationship Management Buzz – CRM in Indian Banking – CRM Concept understanding the processes – CRM is Interactive – Networking vendors Continue invasion of CRM Market – Customer Relationship Portal – CRM utility in India – Quality management move to the fore front – A Better, More Challenging Job- Wher does a customer figure in relationship   marketing Paradigm – , Approaches to the Marketing Emergence of the Network Marketing Paradigm- Technology used in CRM, **SCM and Logistics , an overview**

REFERENCE :
ERP   :   **TATA McGraw PUBLICATION**
ECOMMERCE :   **C.S.V. MURTHY**

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Introduction to different Business segments

Manufacturing

Trading

Finance

Services Industry

Flow of Information in various segments. Discussion about Input documents and Output reports in general for the above sectors.

1. **PAYROLL SYSTEM**

   Earning & Deduction Calculation Module

   Wage Pay Slip Processing

   Monthly Salary File

   Report Generation

   Preparation Of Annual Summaries

   Bonus Reporting

   Statutory Reports

   Costing and Management Reports

2. **FIXED DEPOSIT SYSTEM**

   Types of Deposit schemes, category or Depositors Statutory provisions.

   Interest warrants and deposit register.

   Maturity and renewal procedures.

   Statutory and Management reports

3. **LIBRARY MANAGEMENT SYSTEM**

   Books Issue, Return, Fine Due analysis

   Reports- Authorwise, Bookwise, Subjectwise etc

   Video, Audio Cassette Library system, Reports

4. **SALES ORDER PROCESSING**

   Order Acceptance and recording

   Sales invoicing

   Sales analysis based on products, customers and terms

5. **INVENTORY MANAGEMENT**
   Purchase order processing
   Stores Accounting
   Stores transaction receipts, Issues and adjustment
   Stock ledger
   Inventory levels EOQ, ABC Analysis
   Inventory control reports such as slow moving / non moving items
   MATERIAL PLANNING
   Bill of material
   Computing Gross / net requirements

6. **HOTEL MANAGEMENT**
   Departmental Organization of Hotel:- such as room occupancies, room service, restaurant, house keeping, conferencing, exhibition, parties etc
   Kitchen stores accounting
   Reservation check in and check out
   Service accounting and bill printing
   Management Reports.

7. **HOSPITAL MANAGEMENT**
   Departmental organization of hospital such as in-patient, outpatient, laboratories, pharmacy, surgical rooms etc
   Medical stores accounting
   Registration, shifting and discharge of patient
   Service accounting and bill printing
   Management Reports

Note: All the above systems must consist of the following
   1. File Layout
   2. E-R Diagram
   3. Data Flow Diagram
   4. Input Design
   5. Output Design

M.C.M. Semester-III
3.4- DATA STRUCTURES
(W.e.f.,June 2005)

Introduction
Algorithm analysis
Asymptotic Notation
Foundation Data Structures – Dynamic Arrays
Abstract Data types, Design patterns

Liner Data Structure :-
Single linked lists, Multidimensional Arrays
Stocks, Queues, Deques
Orderd lists, sorted list
Hashing – basic, methods, functions
Hashing tables scatter tables, applications

Non – Liner Data Structures
Trees – basic, N-ary trees, binary trees,
Traversal, expression, trees, implementation, AVL search trees
M-way search trees, B-trees, Application
Heap-basic, binary heap, leftist heap, binomial queres application

Graphs and Sets
Sets – Basic, Array and Bit vector sets
Multisets, Partitions, applications,
Dynamic storage Allocation – Basic, Singly linked free storage,
doubly linked free, Application
Buddy system, application
Graphs – basics, implementation, traversals, shortest path
Algorithms, minimal - cost spanning trees, critical path analysis

Introduction to. NET framework

What is .NET framework, CLR – What is common language Runtime, .NET class Framework – User and Program INTERFACE., COM and DNA

Introduction to VB.NET

What is visual Basic.NET, Purpose of Visual Basic. NET
Migration from Visual Basic 6.0 to Visual Basic.NET
Advantage of Visual Basic.NET over Visual Basic 6.0
Forms, Language and Syntax changes.

Object Oriented Features of VB.NET

Encapsulation, Abstraction, Inheritance, Polymorphism, Delegates

Architecture of Windows forms

Central Class, Rich Central Class
Scrollable control Class, From Class,

Windows Forms

Writing a form, Application Model, Dynamic Layout
Programming with Menu's, Programming with MDI forms

Windows from central reference

Link Label, Toolbar, Panel, Group Box, Date picture, Color picture, Print picture, Progress Bar. Error Display. Time.

Exception Handing

Validate user input

ADO.NET

Overview of ADO.NET, ADO.NET architecture and objects Model Introduction to dataset, Difference between Dataset and Recordset Introuction to Data adapter, Manipulating databases using dataset Manipuiation of Oracle 9i database using dataset, Manipulation of SQL server 2000 database using, Dataset Manipulation of Remote Access Database, Manipulation using XML datasheet, Using data access controls, Executing command, Retrieving data using OLEDB

and SQLCLIENT providers Parameters from stored procedures, Populate a dataset, Filter data, Data Binding using window forms, Handle data errors.

Interoperability

Creating Business components, Namespace, Classes, Calling Business components using VB.NET, Access .COM components using VB.NET. Accessing VB.NET components from com, Call negative function by using platform invoke

Introduction to GDI+

Creating Graphic objects with GDI+,

Creating controls

About control creation, Types of Controls, Adding Properties Adding Events, Calling Controls in windows form Host a windows control inside Microsoft internet explorer.

Globalization

Globalization and localizability for the UI

Net Assembly

Satellite and Resource – Only Assemblies

Versioning.

Creating Strong Names, Accessing Global cache. Private versioning, Shared Versioning, Writing Configuring files, Security, Code level security. Testing. Application center test.

Deployment

- Planning the deployment.
- Web based deployment, net-work based deployment
- Creating a step, Register, Components and assemblies, install time compilation
- Adding assemblies to the global assembly cache, security
- Policy verification
- Remoting (URL) (remoting)

M.C.M. Semester-III
3.6- List of JAVA Practical
(W.e.f. June 2005)

1. Write a Java Program to Implement Income Tax Calculator
2. Write a Java Program to implement employee information System Using Inheritance, where manager, clerk, executives are employee.
3. Write a Program to Transfer the data from one file to another file. The name of Source file and destination file name are passed as command line arguments.
4. Demonstration of function Overriding.
5. Demonstration of Function interface.
6. Demonstration of AWT Components such as, panel, frame, button.
7. Demonstration of Swing Components control, textbox, label, menu.
8. Write a applet code which display "Human Face".
9. Create applets code using Paint mode set, whenever the new object is drawn it overwrites the original contain of drawing objects.
10. Write a Java Program to connect with backend (Oracle or Access)

Data Structure 3.6

1. Write a Program to perform an operations on stack
2. Write a Program to perform an operations on queue
3. Write a Program to perform an operations on circular queue
4. Write a Program to perform an operations on singly linked list
5. Write a Program to perform an operations on doubly linked list
6. Write a Program to perform an operations on binary tree
7. Write a Program for sorting
   a) Bubble
   b) Merge
   c) Quick
   d) Heap
8. Write a Program to implement linear and binary search
9. Write a Program to implement factorial using recursion
10. Write a Program to implement tower of Hanoi using recursion

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NORTH MAHARASHTRA UNIVERSITY, JALGAON
Master of Computer Management
M.C.M. Semester-IV
4.1- Java Script, VB Script and ASP
(W.e.f.,June 2005)

ACTIVE SERVER PAGES
Introduction, Comparison with CGI, ISAPI, IDC,

WINDOWS DISTRIBUTED INTERNET ARCHITECTURE
Overview, Client-Server Architecture, 3-Tier/N-Tier
Architecture

DEVELOPING ASP USING VISUAL INTERDEV
Creating HTML and ASP components, Creating Web Projects
and Database Projects, Creating Site Diagrams.

ASP OBJECT MODEL
Request, Response, Application Session, Server. Object
Context

USING COOKIES
Creating Cooking, Persisting Cookies, Saving User Preferences
Determining Browser Capabilities with Cookies

DATABASE ACCESS WITH ASP
ActiveX Data Object Model, ODBC Drivers and OLE DB
Providers, Creating Active Data Objects Components, Connecting and
Accessing Various Data Sources, Oracle, SQL Server, Ms Access,
Submitting Query Results into HTML, DO Error Processing

PERFORMANCE ENHANCED COMPONENTS
The Login Utility Component. The Counters Component, The
Page Counter Component, The Ad Rotator Component, The Content
Rotator Component, The Browser Capabilities Component etc

HYPER TEXT MARKUP LANGUAGE (HTML)

WWW, Web site, Web Page, Home Page, History of HTML, SGML, URLS, text, Tags, Placing images, audio and video files in web pages Creating Tables, Creating GUI, Frames, Merquee.

DHTMAL

Dynamic HTML Object Model, Events = Mouse Events, Keyboard Events, Cascading Style Sheets.

VB SCRIPT

Introduction to Scripting Languages, Introduction to VBScript, VBScript Language, VBScript Object Model, Frames. Working With Browser Windows, Statements and Functions.

JAVA SCRIPT

Introduction to JavaScript, Differences between Java and JavaScript Browsers Compatible SCRIPT Tag, Uses of SCRIPTS Tag. JavaScript Using SCRIPT Tag and SCRIPT File, Versions, Default Versions, Types of Scripts Tags, immediate, Deferred and Hybrid Browser Objects, Syntax, Data types, Loops. Objects :- Window, Document, Images, Links, Anchors Frames, Applets and Forms, Event Handling, Evaluation Forms.

WRITING EMAIL ENABLED APPLICATIONS

The MS SMTP Service, Collaboration Data Objects of Windows NT Instantiating Collaboration Data Objects, Sending and Receiving Mail with CDO

MTS AND ASP COMPONENTS

Overview of MTS, Understanding Transactions, Creating Components. THE SCRIPTING OBJECTS, The Dictionary Objects, The File System Objects, The Text Stream Object.

USING ASP WITH MICROSOFT INDEX SERVER

Overview of index Server, Querying and Indexing, Building Search Forms Using ADO with Index Server.

MESSAGE QUEUING SERVER (MSMQ)

Overview of Message – Oriented Middleware, MSMQ Architecture Using MSMQ in ASP

ASP ERROR HANDLING AND DEBUGGING

The ASPError Object, The script Debugger.

INTERNET PROGRAMMING

INTERNET, Internet Basics, WWW, Services provided by ISP's (Internet Service Provider), Service (E-mail, Telnet, FTP, WWW, Chat)

Gopher, Browsers, Accounts, Shell and TCP/IP Domain Naming System (DNS), Protocols, Connection oriented and Connection less Services as Protocols.

M.C.M. Semester-IV
4.2- Introduction J2EE, J2ME
(W.e.f. June 2005)

J2ME overview: -

Java 2 Micro edition and the world of java, Java virtual Machine, J2EE and J2ME, Inside J2ME, J2ME and Wireless devices, Other Java platforms of Small computing devices.

Small computing Technology: -

Wireless technology. Radio data networks, Microwave technology. Mobile radio networks, Messaging, Personal digital assistances, Mobile Power, Set Top boxes Smart cards.

J2ME architecture and Development Environment:-

J2ME architecture, Small computing device requirements, Run

time environment, MIDlet Programming. Java language for J2ME, J2ME software development kits. Multiple MIDlets in MIDlet suite. J2ME Wireless toolkit.

J2ME Best Practices and Patterns: -

The reality of working in a J2ME world, Best Practices, Keep application simple, Keep application small, Limit the use of Memory, Off load computations to the server, Simplify the user interface, Use simple variables, simplify the user interface, Use Local variables, Avoid synchronization, Thread Group Class Workaround, Upload code From web server, Reading setting from JAD files, Populating drop down boxes, Minimize Network traffic, Automatics time synchronization, Update data the has changed.

M.C.M. Semester-IV
4.3- Management Information System
(W.e.f. June 2005)

1. ## Introduction to Management Information Systems (MIS)
    Evolution of MIS - MIS as an Evolving concept - Why MIS is a subject of Great Interest - Need of MIS- Definitions of MIS- Benefits of MIS - MIS Functions - Objectives of MIS - Characteristics of MIS - The role of an MIS Information Flow in a Typical Manufacturing company - operating elements of an Information Systems - Components of an Information System - Three dimensions of Information Systems - Management Information System means computers? - Various Steps to be followed for Conversion of Manual to computer based Information System- Database as a feature of MIS- The Relationship between decision making and MIS- Management Information System - The logic of Information System- Integrating Managerial Levels and Functional area of MIS- Major MIS elements - The Technology of Management Information Systems - The Data Life Cycle

2. ## MIS and Other Subsystems
    Information Generators - Information System levels -

Horizontal and Vertical Integration of an Information System. - Framework delineated by Robert Anthony - Feedback and control - open and closed loop system - MIS Organization- 5 types of Information System - Support of Information systems- Domains of management Information Systems Types- database Processing- MIS versus data processing - MIS as Federation of subsystems - Synthesis of a Management Information Structure (Physical structure of organizational MIS and conceptual structure of Organizational MIS) - The management Information system as a Pyramid - Establishing an MIS (Planning, Designing, Implementing and Improving)- Working smarter.

Information System & Business
1. Study of information system
2. Need Of Information technology In Business

Fundamental Of Information System
1. Fundamental Of Information System
2. Overview Information System

Solving business Problem In Information System
1. System approach to problem solving.
2. Developing Information system solution.

The Internet & Electronic Commerce
1. The Internet & Business.
2. Fundamental & Electronic Commerce.

Information system For business Application
1. Business Information system
2. Transaction processing system.

Information system for Strategic Advantages
1. Fundamental Of Strategic Advantages
2. Strategic Application & Issues In Information technologies.

Managing IT :Enterprise & Global Management
1. Managing Information Resource & technologies.
2. Global Information technologies Management

Managing IT: Planning & Implementing Change
1. Planning Of Business change with IT.

2.Implementing Business Change with IT.

REFERENCES:

Information System for Management. O' brian

MIS : C.S.V. Murthy.

MIS : W. S. Jawadekar.

MIS : Sadagopan.

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M.C.M. Semester-IV

4.4- Operation Research

(W.e.f. June 2005)

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1. **LINEAR PROGRAMMING PROBLEMS:** -

Statement of L.P.P, Simple Examples & Formulation of problems. Definition of slack variable, surplus variable, unrestricted variable, decision variable, solution, feasible solution, degenerate & non-degenerate solution, optimum solution, basic & no-basic variable, objective function, constraint & non-negative condition.

Solution of L.P.P. by simplex method (up to three variables only), criteria for unbounded solution (Graphical method is not expected)

2. **SIMULATION:** -

Concepts & meaning of simulation, advantages & disadvantages, Monte-Carlo technique of simulation.

3. **NETWORKING ANALYSIS:** -

Definition of Event, activity, critical activity, project duration, predecessor & successor activity or event, Fulkerson's rule properties & construction of a networking.

4. **THEORY OF GAMES:** -

Concept of game theory, two person zero-sum game, saddle point, mini-max and max-mini principle, fair and not fair game, principle of dominance, solution of game problem by using arithmetic, matrix & graphical method

1. Operational Research   TAHA
2. Operational Research   S. D. Sharma
3. PERT and CPM   L.S. Shrikanth
4. Quantitative Technique   JHAMB

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1. Write a VB / JAVA script to handle different events of web page.
2. Write a VB / JAVA script to validate a HTML form containing different controls.
3. Write a VB / JAVA script to use different objects (windows, documents, etc).
4. Write a VB / JAVA script to use different functions.
5. Write an ASP Script to display total no of users visited, no of active users and list of users visited
6. Write an ASP Script to add and delete a record from database.
7. Write an ASP Script to display all records from data source, and to update and delete that record.
8. Create a small web Application for web voting to the users (YES, NO, CANT SAY).And display percentage of each option on 'Report' button click.
9. Write an ASP Script with a facility to store [optional] the User Name and Password in cookie and display it on second time Login if stored. Also display cookies information on other pages of Application.
10. Create an ASP application to Implement Ad Rotator Component.

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