CENTRE FOR DISTANCE EDUCATION
ANNA UNIVERSITY
CHENNAI – 25.

MASTER OF COMPUTER APPLICATION
I– VI SEMESTER
REGULATIONS 2007
SYLLABUS & ALL ELECTIVES
### SEMESTER – I

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Theory</td>
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<tr>
<td>DMC1601</td>
<td>Computer Organization</td>
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<tr>
<td>DMC1602</td>
<td>Problem Solving and Programming</td>
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<td>DMC1603</td>
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### SEMESTER – II

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<tr>
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<td>Database Management Systems</td>
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### SEMESTER – III

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### SEMESTER – V

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### SEMESTER – VI

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<td>Project Work</td>
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## LIST OF ELECTIVES
### M.C.A. (MASTER OF COMPUTER APPLICATIONS)

#### ELECTIVE 1 – III Semester

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<th>S.No.</th>
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<tr>
<td>1.</td>
<td>DMC 1625 Advanced Databases</td>
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<tr>
<td>2.</td>
<td>DMC 1627 TCP/IP Protocol Suite</td>
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<td>DMC 1675 Management Information System</td>
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#### ELECTIVE 2 – IV Semester

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<td>DMC 1630 Mobile Computing</td>
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<td>DMC 1632 Software Agents</td>
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<td>DMC 1676 Human Resource Management</td>
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#### ELECTIVE 3, 4, 5 and 6 - V Semester

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<th>S.No</th>
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<td>DMC 1635 Information Security</td>
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<td>DMC 1621 Electronic Commerce</td>
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<td>DMC 1646 Instructional Design for E-Learning</td>
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<td>DMC 1647 E-Learning Technology</td>
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<td>DMC 1673 Legal Aspects in Health Care</td>
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<td>DMC 1628 Data Warehousing and Data Mining</td>
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<td>DMC 1671 Health Care Information System</td>
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<td>DMC 1638 Merchant Banking and Security Market</td>
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</table>
1. INTRODUCTION TO DIGITAL DESIGN


2. DIGITAL COMPONENTS - REGISTER TRANSFER & MICRO OPERATIONS


3. COMPUTER ORGANIZATION AND PROGRAMMING


4. INPUT – OUTPUT ORGANIZATION


5. MEMORY ORGANIZATION AND CPU

Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory – Memory Management Hardware – CPU: General Register Organization – Control Word – Stack Organization – Instruction Format – Addressing Modes – Data Transfer And Manipulation – Program Control.

TEXTBOOK


REFERENCES

DMC1602 PROBLEM SOLVING AND PROGRAMMING

1. INTRODUCTION TO COMPUTER PROBLEM SOLVING


2. FUNDAMENTAL ALGORITHMS


3. INTRODUCTION TO C LANGUAGE


4. ARRAYS, FUNCTIONS, STRUCTURES AND UNIONS

Arrays – dynamic and multi-dimensional arrays - Character arrays and Strings – String handling Functions - User defined Functions – Categories of Functions – Recursion - Structures and Unions – Array of Structures – Structures and Functions

5. POINTERS AND FILE MANAGEMENT


TEXTBOOKS

1. R.G.Dromey “How to Solve it by Computer”, PHI, 1998

REFERENCES

1. Deitel and Deitel “C How to Program”, Addisson Wesley, 2001
DMC1603 BUSINESS PROCESSES

1. ORGANIZATIONAL STRUCTURE

Types of Business Organizations-Organizational Structures-Definition Complexity - Formulization-Size-Technology-Culture-Forms and Outcomes-Explanations of Structures - IT Industry and Organizational Structures-Case Studies

2. ORGANIZATIONAL OUTCOMES

Organizational Power and Power Outcomes-Leadership and Decision Making-Communication and Organizational Change-Organizational Environments and Effects-Inter and Intra organizational Relationships-Organizational Effectiveness-Case Studies

3. BUSINESS PROCESS RE-ENGINEERING


4. BPR AND IT INDUSTRY

BPR and Information Technology Process-People View and Perspectives-Empowering People through IT-Managing Change in the Global Environment-BPR Rediscovering Indian Paradigm-Need of Reengineering-Case Studies

5. E-BUSINESS PROCESS


TEXTBOOKS


REFERENCES

DMC1604 DATA STRUCTURES

1. DATA STRUCTURES


2. TREES

Binary Trees – Operations on binary trees - Binary Tree Representations – node representation, internal and external nodes, implicit array representation – Binary tree Traversals - Huffman Algorithm – Representing Lists as Binary Trees

3. SORTING AND SEARCHING


4. GRAPHS AND THEIR APPLICATIONS


5. STORAGE MANAGEMENT

General Lists: Operations, linked list representation, using lists, Freeing list nodes - Automatic list Management: Reference count method, Garbage Collection, Algorithms, Collection and compaction

TEXTBOOK


REFERENCES

DMC1605 ACCOUNTING AND FINANCIAL MANAGEMENT

1. FINANCIAL ACCOUNTING


2. ACCOUNTING


3. BUDGETS AND BUDGETING CONTROL

Budgets and Budgetary Control-Meaning-Types-Sales Budget-Production Budget-Cost of Production Budget-Flexible Budgeting-Cash Budget-Master Budget-Zero Base Budgeting-Computerized Accounting

4. INVESTMENT DECISION AND COST OF CAPITAL


5. FINANCING DECISION AND WORKING CAPITAL MANAGEMENT


TEXTBOOK


REFERENCES

1. S.P.Iyengar, “Cost and Management Accounting”, Sultan Chand & Co,
2. I.M.Pandey, “Elements of Management Accounting” Vikas Publishing House, 19993
DMC1606 PROGRAMMING and DATA STRUCTURES LABORATORY

- Simple C programs
- Files and Structures
- Array Implementation
- Dynamic Memory allocation
- Implementation of Stacks
- Linked List Implementation
- Queue Implementation
- Implementation of Binary Search Tree and Linear Search
- Sorting Algorithm, Simple sorting and Queue Sorting
SEMESTER II

DMC1651  MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

1. MATRIX ALGEBRA

Matrices, Rank of Matrix, Solving System of Equations-Eigen Values and Eigen Vectors-Inverse of a Matrix - Cayley Hamilton Theorem

2. BASIC SET THEORY

Basic Definitions - Venn Diagrams and set operations - Laws of set theory - Principle of inclusion and exclusion - partitions- Permutation and Combination - Relations- Properties of relations - Matrices of relations - Closure operations on relations - Functions - injective, subjective and bijective functions.

3. MATHEMATICAL LOGIC

Propositions and logical operators - Truth table - Propositions generated by a set, Equivalence and implication - Basic laws- Some more connectives - Functionally complete set of connectives- Normal forms - Proofs in Propositional calculus - Predicate calculus.

4. FORMAL LANGUAGES

Languages and Grammars-Phrase Structure Grammar-Classification of Grammars - Pumping Lemma For Regular Languages-Context Free Languages.

5. FINITE STATE AUTOMATA

Finite State Automata-Deterministic Finite State Automata (DFA), Non Deterministic Finite State Automata (NFA)-Equivalence of DFA and NFA- Equivalence of NFA and Regular Languages.

REFERENCES

DMC1652 OBJECT ORIENTED PROGRAMMING

1. OOP PARADIGM

Programming Paradigms-Procedural Programming-Modularity-Exception Handling-Data Abstraction-User Defined Types-Concrete Types-Abstract Types-Virtual Functions-Object Oriented Programming-Generic Programming-Containers-Algorithms

2. INTRODUCTION TO C++

Overview of C++-Classes and Objects-Friend Functions-Friend Classes-Inline Function-Static Members-Arrays-Pointers-References-Dynamic Allocation

3. OVERLOADING

Function Overloading-Overloading Constructor Functions-Copy Constructors-Default Argument-Operator Overloading-Member Operator Overloading-new and delete

4. ADDITIONAL FEATURES

Inheritance-Base Class-Access Control-Virtual Functions-Pure Virtual Functions-Templates-Generic Functions-Applying Generic Functions-Generic Classes-Exception Handling-C++ I/O Streams-File I/O-STL-Overview-Container Classes-Lists-Maps-Algorithms Using Functions and Objects-String Class

5. DESIGN CONCEPTS

Role of Classes-Kinds of Classes-Concrete Types-Abstract Types-Nodes-Changing Interfaces-Object I/O-Actions-Interface Classes-Handles-Use Counts Applications frame works

REFERENCES

DMC1653 DESIGN AND ANALYSIS OF ALGORITHMS

1. INTRODUCTION


2. DIVIDE AND CONQUER METHOD AND GREEDY METHOD


3. DYNAMIC PROGRAMMING


4. BACKTRACKING AND BRANCH AND BOUND


5. NP-HARD AND NP-COMPLETE PROBLEMS


REFERENCES:

DMC1654 DATABASE MANAGEMENT SYSTEMS

1. INTRODUCTION


2. RELATIONAL DATABASES

SQL-Basic Structure-Set Operations-Complex Queries-Joined Queries-DDL-Embedded SQL-Dynamic SQL-Other SQL Functions-Query by Example-Integrity and Security of searching-Relational Database Design

3. DATA STORAGE AND INDEXING

Storage & File Structure-Disks-RAID-File Organization-Indexing & Hashing-B+ TREE-B Tree-Static Hashing-Dynamic Hashing-Multiple Key Access

4. QUERY EVALUATION & OPTIMIZATION

Query Processing - Selection Operation – Sorting - Join Operation - Evaluation of Expressions - Query Optimization

5. TRANSACTION MANAGEMENT

Transaction Concept-Static Implementation-Concurrency Control-Protocols-Deadlock Handling-Recovery Systems-Recovery with Concurrent Transactions-Shadow Paging-Buffer Management-Case Studies-Oracle-Microsoft SQL Server

REFERENCES

DMC1655 OPERATING SYSTEMS

1. INTRODUCTION

Definition of OS-Mainframe System-Desktop Systems-Multi processor System-Distributed-Clustered-Real time Systems-Handheld Systems-Operating System Structure-System Components-Services-System Calls-System Programs-System Design and Implementation

2. PROCESS MANAGEMENT


3. PROCESS SYNCHRONIZATION

Critical Section-Synchronization Hardware-Semaphores-Problems of Synchronization - Critical Regions-Monitors-Deadlocks-Characterization-Handling Deadlocks-Deadlock Prevention-Avoidance-Detection-Deadlock Recovery

4. MEMORY MANAGEMENT


5. I/O AND FILE SYSTEMS


REFERENCES

DBA1605 COMMUNICATION SKILLS

1. COMMUNICATION IN BUSINESS

Systems approach, forms of business communication, management and communication, factors facilitating communication.

2. COMMUNICATION PROCESS

Interpersonal perception, selective attention, feedback, variables, listening barriers to listening, persuasion, attending and conducting interviews, participating in discussions, debates and conferences, presentation skills, paralinguistic features, oral fluency development.

3. BUSINESS CORRESPONDENCE

Business letter. Memos, minutes, agendas, enquiries, orders, sales letters, notice, tenders, letters of application, letter of complaints.

4. TECHNICAL REPORTS

Format, Choice of vocabulary, coherence and cohesion, paragraph writing, organization.

5. PROJECT REPORTS

Project proposal, project reports, appraisal reports.

TEXT BOOKS:


REFERENCES:

DMC1656 OBJECT ORIENTED PROGRAMMING LABORATORY

- Recursive functions
- File handling operations
- Simple classes for understanding objects, member functions and constructors
- Handling constants in a class and constant objects
- String class implementation
- Dynamic memory allocation
- Iterator applications
- Operator overloading
- Functional overloading – templates
- Inheritance issues
DMC1657 DBMS LAB

- SQL – Triggers, stored procedures, queries, embedded sql
- Data definition of page tables and views
- Data manipulation and data control of base tables and views
- High level programming language extensions – PL/SQL and embedding with C/Java
- Stored procedures and Data base triggers
- Working with forms, menus and reports
SEMESTER – III

DMC1701 COMPUTER NETWORKS

1. INTRODUCTION


2. NETWORK FUNDAMENTALS


3. NETWORK LAYER


4. TRANSPORT LAYER

Reliable Byte Stream (TCP) – Simple Demultiplexer (UDP) – TCP Congestion Control – Congestion Avoidance Mechanisms.

5. PRESENTATION LAYER and APPLICATIONS


TEXT BOOK


REFERENCES

DMC1702  MICROPROCESSORS AND ITS APPLICATIONS

1. INTRODUCTION TO 8085 MICRO PROCESSOR


2. INTRODUCTION TO 8086 MICROPROCESSOR

Introduction -8086 Architecture -8086 Addressing Modes -8086 Instruction Set – Data Movement Instructions Arithmetic and Logic Instructions - Program Control Instructions

3. 8086 MICROPROCESSOR INTERFACING


4. 80386 AND PENTIUM MICRO PROCESSORS

Introduction to Intel 80386- Basic Programming model - Memory Organization - I/O Space - 80386 pins and signals- Bus transfer techniques - 80386 Modes – Introduction to Intel Pentium Microprocessor: Block diagram and Registers.

5. PERIPHERAL INTERFACING

Keyboard Display Interface-Hex key and display interface to 8085, 8279 Keyboard display controller chip- Printer Interface: LR 7040 Printer interface using 8295 printer controller-CRT controller interface: CRT Fundamentals, 8275 CRT Controller- Coprocessors.

TEXT BOOK


REFERENCES

DMC1703 SOFTWARE ENGINEERING

1. INTRODUCTION


2. REQUIREMENT ANALYSIS


3. SOFTWARE DESIGN

Design Concepts – Design Models – Pattern Based Design – Architectural Design – Component Level Design – Component – Class Based And Conventional Components Design – User Interface – Analysis And Design

4. SOFTWARE TESTING


5. SCM AND QUALITY ASSURANCE


TEXT BOOK


REFERENCES

DMC1704 COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS

1. INTRODUCTION


2. 2D TRANSFORMATIONS

Two dimensional transformations – Scaling and Rotations - Interactive Input methods - Polygons - Splines – Bezier Curves - Window view port mapping transformation.

3. 3D TRANSFORMATIONS


4. OVERVIEW OF MULTIMEDIA


5. MULTIMEDIA SYSTEMS AND APPLICATIONS

Multimedia communication systems – Data base systems – Synchronization Issues – Presentation requirements – Applications – Video conferencing – Virtual reality – Interactive video – video on demand

TEXT BOOKS


REFERENCES

DMC1705  INTERNET PROGRAMMING

1. BASIC INTERNET CONCEPTS

Connecting to the Internet – Domain Name System - Exchanging E-mail – Sending and Receiving Files - Fighting Spam, Sorting Mail and avoiding e-mail viruses – Chatting and Conferencing on the Internet – Online Chatting - Messaging – Usenet Newsgroup – Internet Relay chat (IRC) – Instant Messaging - Voice and Video Conferencing.

2. WORLD WIDE WEB


3. JAVA FUNDAMENTALS


4. PACKAGES


5. ADVANCED JAVA PROGRAMMING


TEXT BOOKS


REFERENCES

1. Retrieving data with URLs
2. Implementation of Socket Programming
   a. Using TCP/IP
   b. Using UDP
3. Implementation of FTP
4. Implementation of ECHO/PING/TALK
5. Implementation of Remote command Execution
6. Implementation of ARP
7. Implementation of RARP
8. Implementation of RMI / RPC
9. Implementation of Shortest Path Routing Algorithm
10. Implementation of Sliding Window Protocol
DMC1707 OPERATING SYSTEM LABORATORY

1. Implement the following CPU Scheduling Algorithms.
   i) FCFS    ii) Round Robin    iii) Shortest Job First.
2. Implement the Mutual Exclusion Problem Using Dekker's Algorithm.
4. Implement Best fit, First Fit Algorithm for Memory Management.
5. Implement Memory Allocation with Pages.
6. Implement FIFO page Replacement Algorithm.
7. Implement LRU page Replacement Algorithm.
8. Implement the creation of Shared memory Segment.
10. Implement Banker's algorithm.
1. INTRODUCTION & FILE SYSTEM


2. PROCESSES


3. INTERPROCESS COMMUNICATION


4. SOCKETS


5. APPLICATIONS

Debugging techniques - TCP echo client server - UDP echo client server - Ping - Trace route - Client server applications like file transfer and chat.

TEXT BOOKS

1. W. Richard Stevens, “Advanced programming in the UNIX environment”, Addison Wesley, 1999.(Unit 1,2 &3)

REFERENCE BOOKS

DMC1752 RESOURCE MANAGEMENT TECHNIQUES

1. LINEAR PROGRAMMING MODELS

Mathematical Formulation - Graphical Solution of linear programming models – Simplex method – Artificial variable Techniques- Variants of Simplex method

2. TRANSPORTATION AND ASSIGNMENT MODELS

Mathematical formulation of transportation problem- Methods for finding initial basic feasible solution – optimum solution - degeneracy – Mathematical formulation of assignment models – Hungarian Algorithm – Variants of the Assignment problem

3. INTEGER PROGRAMMING MODELS

Formulation – Gomory’s IPP method – Gomory’s mixed integer method – Branch and bound technique.

4. SCHEDULING BY PERT AND CPM


5. QUEUEING MODELS

Characteristics of Queuing Models – Poisson Queues - (M / M / 1) : (FIFO / ∞ / ∞), (M / M / 1) : (FIFO / N / ∞), (M / M / C) : (FIFO / ∞ / ∞), (M / M / C) : (FIFO / N / ∞) models.

TEXT BOOKS


REFERENCES

DMC1753 OBJECT ORIENTED ANALYSIS AND DESIGN

1. INTRODUCTION


2. METHODOLOGY AND UML


3. OBJECT ORIENTED ANALYSIS

Identifying Usecase – Business object analysis – Usecase driven object oriented analysis – Usecase model – Documentation – Classification – Identifying object, relationships, attributes, methods – Super-sub class – A part of relationships Identifying attributes and methods – Object responsibility

4. OBJECT ORIENTED DESIGN

Design process – Axions – Colollaries – Designing classes – Class visibility – Refining attributes – Methods and protocols – Object storage and object interoperability – Databases – Object relational systems – Designing interface objects – Macro and Micro level processes – The purpose of a view layer interface

5. SOFTWARE QUALITY


TEXT BOOKS


REFERENCES

1. CLIENT / SERVER CONCEPTS


2. EJB ARCHITECTURE

EJB – EJB Architecture – Overview of EJB software architecture – View of EJB – Conversation – Building and Deploying EJBs – Roles in EJB.

3. EJB APPLICATIONS

EJB Session Beans – EJB entity beans – EJB clients – EJB Deployment – Building an application with EJB.

4. CORBA


5. COM


TEXT BOOKS


REFERENCES

DMC1755 VISUAL PROGRAMMING

1. INTRODUCTION


2. CONTROLS AND TOOLBARS


3. VISUAL C++ PROGRAMMING AND CONTROLS


4. DATABASE APPLICATIONS

Database Connectivity – Min Database Applications – Embedding Controls in View – Creating user defined DLL’s – Dialog Based Applications – Dynamic Data Transfer Functions – Data Base Management with ODBC – Communicating with other applications – Object Linking and Embedding.

5. GUI DESIGN AND FILE HANDLING


TEXT BOOKS


REFERENCES

MC1708  INTERNET PROGRAMMING LAB

1. Program to illustrate the use of overloading and overriding.
2. Program to implement the concept of Interfaces and packages.
3. Generate the program using exceptions handling mechanism.
4. Program to achieve Inter thread communication and deadlock avoidance.
5. Implement the file operations.
6. Program using Applets.
7. Program using JDBC.
8. Program using JNI concepts.
9. Program to illustrate the use of Remote Method Invocation.
1. Write a C program with Fundamental Graphics Function


3. Write a C program for Circle Drawing using Bresenham Circle Drawing Algorithms.

4. Write a C program for Clipping Algorithm using Line Clipping.

5. Write a C program for 2D Transformations like Translations and Scaling and Rotations.

6. Write a C program for 3D Transformations like Translations and Scaling and Rotations.

7. Create Frame by Frame Animations using multimedia authoring tools.


9. Create a Jpeg image which demonstrates the various features of an image editing tool.

10. Demonstrate Rasterization and filtering of layers and give blending effects for a logo
SEMESTER V

DMC1801  XML AND WEB SERVICES

1. INTRODUCTION


2. XML TECHNOLOGY


3. SOAP


4. WEB SERVICES

Overview – Architecture – Key Technologies - UDDI – WSDL – ebXML – SOAP And Web Services In E-Com – Overview Of .NET And J2EE.

5. XML SECURITY


TEXT BOOKS


REFERENCES

1. INTRODUCTION


2. DOMAIN PROCESSES


3. SOFTWARE DEVELOPMENT


4. SCHEDULING ACTIVITIES


5. QUALITY ASSURANCE


TEXT BOOK


REFERENCES

DMC1803  JAVA PROGRAMMING LAB

1. Simple Java Applications
   a. For understanding reference to an instance of a class(object), methods
   b. Handling strings in Java

2. Simple Package Creation
   a. Developing user defined packages in java

3. Interface
   a. Developing user-defined interfaces and implementation
   b. Use of predefined interfaces

4. Threading
   a. Creation of thread in Java applications
   b. Multithreading

5. Exception Handling Mechanism and Java
   a. Handling pre-defined exceptions
   b. Handling user-defined exceptions

6. Java Database Connectivity
DMC1804 SOFTWARE DEVELOPMENT LAB

Develop Software using CASE tools for the applications like:

1. Online railway reservation system
2. Payroll processing application
3. Inventory system
4. Automating the banking process
5. Software for game
6. Library management system
7. Create a dictionary
8. Text editor
9. Telephone directory
10. Create an E-Book of your choice

Software required:

- **Languages:** C/C++/Java/JSDK/Web browser.
- Any front end tool (like VB, VC++, Developer 2000) etc
- **Any backend tool** (Oracle, Ms-Access, SQL) etc.
- **Any CASE tool**
LIST OF ELECTIVES

General Electives

DMC1621 ELECTRONIC COMMERCE

1. INTRODUCTION


2. SECURITY TECHNOLOGIES


3. ELECTRONIC PAYMENT METHODS


4. ELECTRONIC COMMERCE PROVIDERS


5. ONLINE COMMERCE ENVIRONMENTS


TEXT BOOK


REFERENCES

General Electives

DMC1622 MANAGEMENT INFORMATION SYSTEMS

1. SYSTEM CONCEPTS


2. ORGANIZATIONAL STRUCTURE

Basic model – Hierarchical – Specialization – Formalization – Centralization – Modifications of basic organizational structure – Project organization – Lateral relations – Matrix organization – Organizational culture and power organizational change

3. STRUCTURE OF MIS


4. SYSTEM SUPPORT

Data representation – Communication network – Distributed systems – Logical data concepts – Physical storage devices – File organizations – Data base organization – Transaction processing

5. DEVELOPMENT AND MANAGEMENT

A contingency approach to choosing an application – Developing strategy – Lifecycle definition stage – Lifecycle development stage – Lifecycle installation and operation stage – Project management

TEXT BOOK


REFERENCES

1. E.Wainright Martin, Carol V. Brown, Danial W. DeHayes, Jeffrey A. Hoffer, William
General Electives

DMC1623  WEB GRAPHICS

1.  INTRODUCTION

HTML coding - Basic web graphics - Web page design and site building - Image maps - Adding multimedia to the web.

2.  PAINT SHOP PRO/PHOTOSHOP


3.  IMAGE HANDLING

Scanning Images - Adding Text to the images - Designing icons - Creating background images - Color models - Color depths - Color calibration - Creating gradients - Oil paint effect.

4.  MULTIMEDIA

Creating clippings - Animations with sound effects - Adding audio or Video - Windows Media Player ActiveX Control - Agent control - Embedding VRML in a web page - Real Player ActiveX control.

5.  APPLICATIONS

Creating web site with a particular theme using all the utilities - Graphics - Animations and Interaction.

TEXT BOOKS


REFERENCES

General Electives

DMC1624 HUMAN RESOURCE MANAGEMENT

1. LEADERSHIP


2. MANAGING TECHNICAL AND PROFESSIONAL PEOPLE


3. IDENTIFICATION AND DEVELOPMENT OF TALENTED PEOPLE


4. INNOVATION


5. TEAM ENVIRONMENT AND RECOGNITION

Innovative Team Environment - Award Programs - Recognition Programs - An Example Award Plan - Industry Award Plans - Award Guidelines - Incentive Plans - A Caution on Recognition Programs

TEXT BOOK


REFERENCES


General Electives

DMC1625  ADVANCED DATABASES

1. RELATIONAL DATABASES

Relational Model - Querying - Storage Structures - Query Processing - Normalization.

2. OBJECT ORIENTED DATABASES

Introduction to Object Oriented Data Bases - Approaches - Modeling and Design - Persistence - Transaction - Concurrency - Recovery - Database Administration.

3. EMERGING SYSTEMS

Enhanced Data Models - Client/Server Model - Data Warehousing and Data Mining - Web Databases – Mobile Databases.

4. CURRENT ISSUES

Rules - Knowledge Bases - Active and Deductive Databases - Distributed Databases and Parallel databases.

5. DATABASE DESIGN ISSUES

Security - Integrity - Consistency - Database Tuning - Optimization and Research Issues.

TEXT BOOK


REFERENCES

DMC1626 SOFTWARE QUALITY MANAGEMENT

1. INTRODUCTION

Software Process assessment overview - Assessment phases - Assessment principles - Assessment conduct - Implementation consideration - Quality management - Quality assurance plan - Considerations - Verification and Validation.

2. CONFIGURATION MANAGEMENT


3. SOFTWARE STANDARDS AND INSPECTION

Definitions - Reason for software standards - Benefits - Establishing standards - Guidelines - Types of reviews - Inspection of objectives - Basic inspection principles - The conduct of inspection - Inspection training.

4. TESTING AND MANAGING SOFTWARE QUALITY


5. DEFECT PREVENTION


TEXT BOOK


REFERENCES

DMC1627  TCP/IP PROTOCOL SUITE

1. INTRODUCTION

2. INTERNET PROTOCOL

3. TRANSMISSION CONTROL PROTOCOL

4. APPLICATION LAYER AND CLIENT SERVER MODEL

5. APPLICATION PROTOCOLS

TEXT BOOK

REFERENCE
DMC1628 DATA WAREHOUSING AND DATA MINING

1. INTRODUCTION

Relation To Statistics, Databases- Data Mining Functionalities-Steps In Data Mining Process-Architecture Of A Typical Data Mining Systems- Classification Of Data Mining Systems - Overview Of Data Mining Techniques.

2. DATA PREPROCESSING AND ASSOCIATION RULES

Data Preprocessing-Data Cleaning, Integration, Transformation, Reduction, Discretization Concept Hierarchies-Concept Description: Data Generalization And Summarization Based Characterization- Mining Association Rules In Large Databases.

3. PREDICTIVE MODELING

Classification And Prediction: Issues Regarding Classification And Prediction- Classification By Decision Tree Induction-Bayesian Classification-Other Classification Methods-Prediction-Clusters Analysis: Types Of Data In Cluster Analysis- Categorization Of Major Clustering Methods: Partitioning Methods – Hierarchical Methods

4. DATA WAREHOUSING

Data Warehousing Components -Multi Dimensional Data Model- Data Warehouse Architecture-Data Warehouse Implementation- -Mapping the Data Warehouse to Multiprocessor Architecture- OLAP.-Need- Categorization of OLAP Tools.

5. APPLICATIONS

Applications of Data Mining-Social Impacts Of Data Mining-Tools-An Introduction To DB Miner-Case Studies-Mining WWW-Mining Text Database-Mining Spatial Databases.

TEXT BOOK

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

REFERENCES

DMC1629 COMPONENT BASED TECHNOLOGY

1. INTRODUCTION
Definition - Industrialization of software development - CBD drivers and benefits - Technology evolution - Components and network computing

2. FUNDAMENTALS
Basic concepts of CBD - Scenarios for CBD - Evolution or revolution - Build, find and use components and objects.

3. MODELS
Basic concepts of object models - Components and interfaces - Working with interfaces - Component and interface modeling - Specification models - domain modeling - Describing classes - Patterns and frameworks.

4. Using CBD
Categorizing & deploying components - CORBA, DCOM.

5. FRAMEWORKS
Class libraries - Encapsulated components - Software frameworks - Pre-built applications.

TEXT BOOK

REFERENCE
General Electives

DMC1630 MOBILE COMPUTING

1. INTRODUCTION

2. WIRELESS NETWORKS

3. MOBILE NETWORK LAYER

4. MOBILE TRANSPORT LAYER
Traditional TCP- Indirect TCP- Snooping TCP- Mobile TCP- Fast retransmit/ Fast Recovery- Transmission/ Timeout Freezing – Selective Retransmission- Transaction Oriented TCP

5. WAP

TEXT BOOK

REFERENCE BOOKS
1. INTRODUCTION TO ERP


2. BUSINESS MODELLING FOR ERP


3. ERP AND THE COMPETITIVE ADVANTAGE


4. COMMERCIAL ERP PACKAGE

Description – Multi-Client Server Solution – Open Technology – User Interface - Application Integration.

5. ARCHITECTURE


TEXT BOOK


REFERENCE

General Electives

DMC1632 SOFTWARE AGENTS

1. AGENT AND USER EXPERIENCE

Interacting with Agents - Agent From Direct Manipulation to Delegation - Interface Agent Metaphor with Character - Designing Agents - Direct Manipulation versus Agent Path to Predictable

2. AGENTS FOR LEARNING IN INTELLIGENT ASSISTANCE

Agents for Information Sharing and Coordination - Agents that Reduce Work Information Overhead - Agents without Programming Language - Life like Computer character - S/W Agents for cooperative Learning - Architecture of Intelligent Agents

3. AGENT COMMUNICATION AND COLLABORATION

Overview of Agent Oriented Programming - Agent Communication Language - Agent Based Framework of Interoperability

4. AGENT ARCHITECTURE

Agents for Information Gathering - Open Agent Architecture - Communicative Action for Artificial Agent

5. MOBILE AGENTS

Mobile Agent Paradigm - Mobile Agent Concepts -Mobile Agent Technology - Case Study: Tele Script, Agent Tel

TEXT BOOKS

1. Jeffrey M. Bradshaw, "Software Agents", MIT Press, 2000. (Unit 1, 2, 3 & 4)

REFERENCES

**General Electives**

**DMC1633  SUPPLY CHAIN MANAGEMENT**

1. **BASIC CONCEPTS**

2. **INTERFACES WITH OTHER DISCIPLINES**

3. **MANUFACTURING AND WAREHOUSING**
   Manufacturing scheduling – Manufacturing flow system – work flow automation – Flexibility in manufacturing to achieve dynamic optimization. Material handling system design and decision. Warehousing and store keeping – strategies of warehousing and storekeeping – space management.

4. **LOGISTICS MANAGEMENT**

5. **INFORMATION TECHNOLOGY AND SCM**
   Information technology and SCM – EDI, ERP, Internet and Intranet, E-Commerce, Bar coding, Telecommunication Network, Advanced planning system, Decision support models for Supply Chain Management, Artificial Intelligence for SCM- Best practice in supply chain management – organizational issues to implement SCM.

**TEXT BOOK**


**REFERENCES**

1. **INTRODUCTION AND STAFFING**

   Introduction - Evolution of information system – Executive support – Factors in design of IT organization – Staffing – Customer service.

2. **PROCESSES**

   Processes - Availability – Performance and tuning – Five Major environments – Production acceptance.

3. **MANAGEMENT**


4. **STRATEGIC SECURITY AND DISASTER RECOVERY**

   Strategic security – Definition – Development – Assessment – Disaster recovery – Definition – Case Study – Steps – Assessment.

5. **TECHNOLOGY**


**TEXT BOOK**


**REFERENCES**


DMC1635  INFORMATION SECURITY

1. INTRODUCTION


2. SECURITY ANALYSIS


3. LOGICAL DESIGN


4. PHYSICAL DESIGN

Security Technology, IDS, Scanning and Analysis Tools

5. NETWORK AND COMPUTER SECURITY

Cryptography, Access Control Devices, Physical Security, Security and Personnel

TEXT BOOKS


REFERENCES


General Electives

DMC1636 INFORMATION SYSTEM AUDIT

1. INTRODUCTION

2. AUDIT PROCESS

3. AUDIT IT PLANNING AND ORGANIZATION

4. AUDITING IT ACQUISITION AND IMPLEMENTATION

5. AUDITING IT OPERATIONS

TEXT BOOK


REFERENCE

Banking Technology

DMC1637 BANKING TECHNOLOGY AND MANAGEMENT

1. BRANCH OPERATION AND CORE BANKING

Introduction and evolution of bank management – Technological impact in banking operation – Total branch computerization – Concept of opportunities – Centralized banking – Concept, opportunities, challenges and implementation

2. DELIVERY CHANNELS

Over of delivery channels – Automated Teller machine (ATM) – Phone banking – call centers – Internet banking – Mobile banking – Payment gateways – Card technologies – MICR electronic clearing

3. BACK OFFICE OPERATIONS


4. INTER BANK PAYMENT SYSTEM


5. CONTEMPORARY ISSUES IN BANKING TECHNIQUES

Analysis of Rangarajan committee reports – E Banking budgeting – Banking softwares.

REFERENCES

Banking Technology

DMC1638 MERCHANT BANKING AND SECURITY MARKET

1. FINANCIAL SYSTEM

2. MERCHANT BANKING

3. SECURITY MARKETS

4. DEPOSITORIES

5. ACTIVITIES OF OTHER FINANCIAL SERVICE PROVIDERS

TEXT BOOKS

REFERENCES
1. INTRODUCTION

Introduction to investment banking - Financial holding companies full service and Boutique investment banks - Investment banking business strategies - Career paths and strategies in investment banking

2. EQUITY AND DEBTS

Private equity - Mergers and Acquisitions - Equity underwriting - Debt underwriting.

3. ASSET SECURITIZATION AND TRADING TECHNIQUES

Asset Securitization - Foreign Listing on wall street - Trading and Trading Techniques - Repurchase Agreements

4. FINACIAL AND INVESTMENT MANAGEMENT

Financial Engineering - Investment Management - Clearing and Settlement - Securities Regulation and ethics

5. GLOBAL MARKETS

Euro markets and Japan - Emerging markets - China’s Securities markets - Investment banking trends and challenges.

TEXT BOOK


REFERENCES

Banking Technology

DMC1640 INTERNATIONAL BANKING

1. THE MODERN BANKING AND INTERNATIONAL BANKING

2. COMPETITIVE ISSUES AND MANAGEMENT OF RISKS IN BANKING

3. REGULATION OF BANKS

4. FINANCIAL STABILITY

5. INTERNATIONAL STANDARDS

TEXT BOOKS

REFERENCES
Call Center Management

DMC1641 CUSTOMER RELATIONSHIP MANAGEMENT

1. CUSTOMER RELATIONSHIP MANAGEMENT

Defined Technology – Strategy – CRM – CRM Success Factors – The Customer service/sales profile – The three levels of service/sales customer service/sales profile

2. CUSTOMER SERVICE

Managing your customer service/sales profile – Content center – Brokerage managing initial – stand alone transaction managing for repeat business – Managing for customer advocacy – CRM strategy starting points - CRM strategy selection.

3. MANAGING CUSTOMER DATA

Managing and sharing customer data – Returning to strategies – Data vs information – Managing customer information – Data vs ethics and legalities of data used tools for capturing customer information

4. EFFECTIVE SLA’s


5. MANAGING CRM


TEXT BOOK


REFERENCE

1. HISTORY OF BPO

Background and history of BPO – BPO as a “Socio-technical” phenomenon – Managing a successful BPO project.

2. CONCEPT OF THE BPO

A systematic team structure and approach – Concept of the BPO life cycle – Various BPO business models.

3. BUSINESS PROCESS MAPPING EXERCISE

Three-tier structure analysis of the enterprise – The BPO Analysis Team (BAT) – BPO costs, direct, hidden, strategic – Total cost management methodology.

4. DEVELOPING THE BPO

Procedure for establishing a vendor selection team (VST) – RFP concepts – Writing a thorough RFP – Developing the BPO contract – Vendor deliverables, penalties for lack of performance – remedies to counter problems – rewards for reaching beyond the basic contract terms – Metrics and service level agreements (SLAs)

5. MANAGING THE BPO TRANSITION

Handling reduction in force (RIF) – Management of the BPO buyer-vendor relationship – Infrastructure considerations – Hardware and software issues – Data management during the changeover.

TEXT BOOKS


REFERENCE

Call Center Management

DMC1643 CALL CENTER TECHNOLOGY

1. ROLE OF THE CUSTOMER CONTACT CENTER

The traditional call center – The role of the customer contact center – The parts and principles of the typical customer contact center – Connection to the outside world.

2. MANAGING TELEPHONY


3. ACD BASICS

The ACD as a customer workflow manager – Bullet-proofing the customer contact center – Telephone terminals and workstations

4. MAPPING AND MANAGEMENT CRM

Data gathering and reporting – Customer experience: mapping and management – CRM within the customer contact center environment

5. INTERNET

Integrating the internet into a traditional call center – The technology acquisition process – Over viewing VOIP based and IPLC based technology.

TEXT BOOK


REFERENCE

Call Center Management

DMC1644  STRESS MANAGEMENT

1. BASICS


2. BUILDING COMMITMENT

Developing a credible leadership – Establishing acclimate of trust – Contracting for clear expectations – committing to share information – Insuring personal and professional development.

3. BUILDING CONTROL

Promoting self-knowledge – Discussing unique stressors – Developing a plan of attack – Breaking the stress cycle – Encouraging participation at all levels – Renegotiating psychological contacts during times of change.

4. BUILDING CHALLENGE


5. ISSUES

Stress is a leadership issue – Stress is an organizational problem – A three-step approach – Optimization – Strategies for staying courteous under stress – The stress Survey.

TEXT BOOKS


REFERENCE

E-Learning

DMC1645

INTRODUCTION TO E-LEARNING

1. INTRODUCTION

2. DESIGN AND IMPLEMENTATION

3. DELIVERY
Multi-channel delivery – Learner support – Developing curriculum – E-learning standards – Instructional design – Content development process – Case studies – Future directions

4. WEB BASED TRAINING

5. LEARNING METHODOLOGY

TEXT BOOKS


REFERENCE

E-Learning

DMC1646 INSTRUCTIONAL DESIGN FOR E-LEARNING

1. INTRODUCTION

E-learning – Types – Foundations – Problem based Approach to designing E-Learning –
Design E-learning – Design and curriculum strategies – Story telling and contextual
based design strategies – Blended learning and curriculum design – Informal learning.

2. PRINCIPLES OF E-LEARNING

Philosophy of education – Theory of learning – Applying principles of multimedia –
Applying principles of contiguity – Applying principles of modality – Applying principles of
redundancy – Applying principles of coherency – Applying principles of personalization.

3. HIGH LEVEL DESIGN


4. DETAIL DESIGN STRATEGIES

Openings and closings – Exposition techniques for writing e-learning content –
Interaction – Visual communication techniques.

5. TECHNIQUES

Leveraging examples in E-learning – Collaborative E-learning – Learner control in E-
learning – E-Learning and problem solving skills – Applying guidelines.

TEXT BOOKS

1. R C Clark and R E Mayer, “E-Learning and the Science of Instruction”, Pfeiffer
2. Driscoll, “Advanced Web-based Training Strategies: Unlocking Instructionally-

REFERENCE

E-Learning

DMC1647 E-LEARNING TECHNOLOGY

1. INTRODUCTION

2. ADVANCED INTERACTION

3. EXTENDING COURSE BUILDERS

4. LEARNING SITE
Introduction to learning site – Possibilities – Installation - Designing a learning site – Customizing a learning site.

5. TRACKING LEARNER DATE
Learning site for tracking – Learning site database – Tracking and scoring issues – Setting up data tracking – Enhancements – Communicating with learning management system.

TEXT BOOKS


REFERENCE

DMC1648                         PORTFOLIO MANAGEMENT

1. MONEY AND CAPITAL MARKETS
Trends of savings and financial flow, the Indian Money market, introduction, characteristics of money market, need for money market, major segments of money market, money market instruments and Capital market, introduction, primary market and secondary market, recent capital market reforms, new capital issue, instruments and market participant

2. STOCK EXCHANGES

3. FUNDAMENTAL ANALYSIS

4. TECHNICAL ANALYSIS

5. PORTFOLIO ANALYSIS
Portfolio theory- Markowitz theory, Sharpe index model, CAPM. Portfolio investment model- basic principles, planning, implementation, portfolio objective and types. Portfolio evaluation – measures of return, formula plans, types of formula plans. Risk adjusted measure of performance – Sharpe’s measure, Treynor’s measure and Jensen’s measure

TEXT BOOKS

REFERENCES
1. INTRODUCTION

2. RISK ASSESSMENT
Approaches to Risk Assessment – Financial Institutional viewpoint of risk – Methods to assess risks acceptability – Assessment of risks in lending to foreign countries, Investment risk in a company.

3. PROBLEMS OF ASSESSING RISK

4. ASSESSING RISK ACCEPTABILITY
Risk Ranking Technique – Alternative methods like Review by experts Public debate – Systems analysis – Statistical techniques including Simulation – Cognitive Mapping – Game Theory – Multivariate Analysis Decision theory etc. – Comparison of the efficiency of alternate methods of analysis

5. METHODS OF ASSESSING DECISION OPTIONS
Comparison of Risk Ranking technique with the methods used by Financial Institution, Methods used by Insurance Industry.

TEXT BOOKS

REFERENCES
1. **FINANCIAL SYSTEM**

2. **MERCHANT BANKING**

3. **SECURITY MARKETS**

4. **DEPOSITORIES**

5. **ACTIVITIES OF OTHER FINANCIAL SERVICE PROVIDERS**

**TEXT BOOKS**

**REFERENCES**
DMC1651 HEALTH CARE INFORMATION SYSTEMS

1. INTRODUCTION

Introduction to health care information – Health care data quality – Health care information regulations, laws and standards.

2. HEALTH CARE INFORMATION SYSTEMS

History and evolution of health care information systems – Current and emerging use of clinical information systems – system acquisition – System implementation and support.

3. INFORMATION TECHNOLOGY

Information architecture and technologies that support health care information systems – Health care information system standards – Security of health care information systems.

4. MANAGEMENT OF IT CHALLENGES

Organizing information technology services – IT alignment and strategic planning – IT governance and management.

5. IT INITIATIVES

Management’s role in major IT initiatives – Assessing and achieving value in health care information systems.

TEXT BOOK


REFERENCE

1. INTRODUCTION

An Overview of Human Resources – How Human Resources Fits Into an Organization - The Legal Framework of Contemporary Human Resources.

2. HUMAN RESOURCE ACTIVITIES AND MANAGERS

Introduction - The Manager-Employee Relationship - Position Descriptions — Department Managers and the Recruiting Process — Civil Service Systems

3. EMPLOYEE TRAINING AND PERFORMANCE APPRAISALS

Conducting a Successful and Legal Selection Interview — Employee Training — Compensation and Benefits — Performance Appraisals — Managers and Employee Problems — Addressing Problems Before Taking Critical Action — Documentation —Terminating Employees

4. CASE STUDY AND SUCCESSION PLANNING

Case Study: Balancing Needs — Succession Planning — Relations with Labor Unions —Directions in Employee Relations.

5. MAINTAINING AN EFFECTIVE HR DEPARTMENT

Human Resources Arbitration — Using Human Resource Consultants — Maintaining an Effective HR Department

TEXT BOOK


REFERENCE

Health Care Management

DMC1653

LEGAL ASPECTS IN HEALTH CARE

1. INTRODUCTION
Introduction to law – Sources of law – Contract and antitrust – Purpose of contract –
Types of contracts – Legality of object – Conditions – Remedies – Contracts of Adhesion
– Employment contracts – Restraint of trade – Civil procedure and trial practice –
Discovery and examination before trail – Memorandum of law – Evidence – Jury
deliberation and determination – Damages – Appeals – Execution of judgments –
Corporate liability – Authority of health care corporation – Duties of health care
corporations.

2. PERSONNEL
Medical staff – Organization – Privileges – Bylaws – Reappointments – Physician-patient
relationship – Nursing and law – Practice of nursing – Nurse licensure – Nurse practice
roles - Liability by departments and health care professionals – Ambulatory care centers
– Emergency departments – Certification of Health care professionals – Licensing
Health care professionals.

3. INFORMATION MANAGEMENT
Introduction – Managing information – Patient consent – Consent definition – Patient
Consent and judicial intervention – Defence and failure to inform - Legal reporting
requirements – Child abuse – Communicable diseases – Births and deaths – Risk
management and incident reporting.

4. PROTECTION
Issues of Procreation – Circuit and district court decisions – Wrongful birth, life, and
conception – Patient rights and responsibilities – Patient rights – Admission – Discharge
– Transfer – Patient bill of rights – Patient responsibilities – Patient Advocacy – Acquired
immune deficiency syndrome – AIDS and health care workers – AIDS and the right to
know – The right to treatment – News media and confidentiality – Negligence –
Occupational safety and health act.

5. ETHICS
Health care ethics – Ethics committee – End of life issues – Organ donations –
Malpractice insurance - Insurance policy – Liability of professional – Medical Liability
Insurance – Self insurance – Medical staff insurance coverage – Labour relations –
Unions and health care organization – Labour rights – Patients rights during labour
disputes – Employment discipline and discharge – Public policy issues – Interference
with employment activities – Fairness.

TEXT BOOK
1. George D Pozgar, “Legal Aspects of Health Care”, Ninth edition, Jones and Bartlett

REFERENCE
1. Dana C Mcway, “Legal Aspects of Health Information Management”, Thomson