### M.E. MULTIMEDIA TECHNOLOGY

#### SEMESTER I (5+1)

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ANNA UNIVERSITY CHENNAI :: CHENNAI 600 025
REGULATIONS - 2009
CURRICULUM I TO VI SEMESTERS (PART TIME)
M.E. MULTIMEDIA TECHNOLOGY

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UNIT I  QUEUEING MODELS 9


UNIT II  ADVANCED QUEUEING MODELS 9

Non- Markovian Queues – Pollaczek Khintchine Formula – Queues in Series – Open Queueing Networks – Closed Queueing networks.

UNIT III  SIMULATION 9

Discrete Even Simulation – Monte Carlo Simulation – Stochastic Simulation – Applications to Queueing systems.

UNIT IV  LINEAR PROGRAMMING 9


UNIT V  NON-LINEAR PROGRAMMING 9


L + T: 45+15 =60

TEXT BOOKS


REFERENCES

1. **Fundamentals**


2. **Data Structures**


3. **Algorithm Design: I**


4. **Algorithm Design: II**


5. **Approximation Algorithms**

Planar Graph Coloring – Maximum Program Stored Problem – Bin Packing – Scheduling Independent Tasks – 0/1 Knapsack – Rounding – Interval Partitioning.

**TOTAL = 45**

**References:**

MM9111 PRINCIPLES OF MULTIMEDIA

UNIT I INTRODUCTION

UNIT II ELEMENTS OF MULTIMEDIA

UNIT III MULTIMEDIA SYSTEMS

UNIT IV MULTIMEDIA TOOLS
Authoring tools – features and types - card and page based tools - icon and object based tools - time based tools - cross platform authoring tools - Editing tools - text editing and word processing tools - OCR software - painting and drawing tools - 3D modeling and animation tools - image editing tools -sound editing tools - digital movie tools – plug -ins and delivery vehicles for www

UNIT V MULTIMEDIA APPLICATION DEVELOPMENT

TEXT BOOKS

REFERENCES

TOTAL = 45
UNIT I  PIPELINING AND ILP  9

UNIT II  ADVANCED TECHNIQUES FOR EXPLOITING ILP  9

UNIT III  MULTIPROCESSORS  9

UNIT IV  MULTI-CORE ARCHITECTURES  9

UNIT V  MEMORY HIERARCHY DESIGN  9
Introduction - Optimizations of Cache Performance - Memory Technology and Optimizations - Protection: Virtual Memory and Virtual Machines - Design of Memory Hierarchies - Case Studies.

TOTAL - 45

REFERENCES

UNIT I  
IP NETWORKS  
Open Data Network Model – Narrow Waist Model of the Internet - Success and Limitations of the Internet – Suggested Improvements for IP and TCP – Significance of UDP in modern Communication – Network level Solutions – End to End Solutions - Best Effort service model – Scheduling and Dropping policies for Best Effort Service model

UNIT II  
ADVANCED ROUTING  

UNIT III  
GUARANTEED SERVICE MODEL  

UNIT IV  
MULTIMEDIA COMMUNICATION  

UNIT V  
WIRELESS MULTIMEDIA COMMUNICATION  

REFERENCES


**MM9117**  
MULTIMEDIA TOOLS LABORATORY

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1. Video editing
2. Audio editing
3. Image editing
4. 2D animation
5. 3D animation
6. HTML/Frontpage/Dreamweaver

**MM9121**  
GRAPHICS DESIGN AND MULTIMEDIA PRESENTATION

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**UNIT I**  
INTRODUCTION

I/O devices – I/O primitives – Attributes of output primitives – DDA – Bresenham technique – Circle drawing algorithms – Interactive input methods.

**UNIT II**  
2D GRAPHICS


**UNIT III**  
3D GRAPHICS


**UNIT IV**  
OVERVIEW OF MULTIMEDIA

Introduction to Multimedia – Multimedia Hardware & Software – Components of multimedia – Multimedia Authoring and tools – Multimedia Project development.

**UNIT V**  
MULTIMEDIA SYSTEMS AND APPLICATIONS

REFERENCES


MM9122 MULTIMEDIA SERVER MANAGEMENT

UNIT I MULTIMEDIA SERVER APPLICATIONS AND ENVIRONMENTS


UNIT II SCHEDULING


UNIT III THE STORAGE SUB SYSTEM


UNIT IV CACHE MANAGEMENT


UNIT V RELATED ISSUES


TEXT BOOKS


REFERENCES


CP9167 DIGITAL IMAGE PROCESSING

UNIT I FUNDAMENTALS OF IMAGE PROCESSING

UNIT II IMAGE ENHANCEMENT AND RESTORATION

UNIT III IMAGE SEGMENTATION AND FEATURE ANALYSIS

UNIT IV MULTI RESOLUTION ANALYSIS AND COMPRESSIONS

UNIT V APPLICATIONS OF IMAGE PROCESSING

TOTAL = 45

REFERENCES

IT9122 APPLIED CRYPTOGRAPHY

UNIT I
Classical Cryptography-The Shift Cipher, The Substitution Cipher, The Affine Cipher
Cryptanalysis-Cryptanalysis of the Affine Cipher, Cryptanalysis of the Substitution Cipher, Cryptanalysis of the Vigenere Cipher, Shannon’s Theory.

UNIT II

UNIT III
The RSA Cryptosystem and Factorin Integer-Introduction to Public -key Cryptography, Number theory, The RSA Cryptosystem, Other Attacks on RSA, The ELGamal Cryptosystem, Shanks’ Algorithm, Finit Fields, Elliptical Curves over the Reals, Elliptical Curves Modulo a Prime, Signature Scheme –Digital Signature Algorithm.

UNIT IV

UNIT V

TOTAL : 45
TEXT BOOK

REFERENCES
UNIT I

UNIT II
Multidimensional Data Structures: k-d Trees - Point Quadtrees - The MX-Quadtree - R-Trees - comparison of Different Data Structures.

UNIT III

UNIT IV
Audio Databases - A General Model of Audio Data - Capturing Audio Content through Discrete Transformation - Indexing Audio Data. Video Databases - Organizing Content of a Single Video - Querying Content of Video Libraries - Video Segmentation

UNIT V
Design and Architecture of a Multimedia Database - Organizing Multimedia Data Based on The Principle of Uniformity - Media Abstractions - Query Languages for Retrieving Multimedia Data.

REFERENCES:

1. Line drawing algorithm, Circle drawing algorithms, Ellipse drawing algorithm
2. 2D transformations
3. Clipping algorithms
4. 3D Graphics using OpenGL, 3D viewing, 3D transformations
5. Developing interactive multimedia applications—Authoring a 2D presentation:
   (storyboard, design layout, collect the content, Presentation)
   Mini project using any of the popular authoring tools (say, flash, director, dreamweaver)
6. Creating simple 3D animations and visualizations.

**MM9131 3D MODELING AND RENDERING**

**UNIT I  INTRODUCTION**
3D rendering pipeline, 3D Geometric primitives – Bezier, B-Splines, NURBS, fractals, Particle systems, 3D transforms – Deform modifiers, Solid modeling – poly modeling, Surface modeling – tessellation - Extruded shapes - Mesh approximations to smooth objects – sphere, cylinder - Hierarchical modeling-Physically based modeling.

**UNIT II  TEXTURE MAPPING**

**UNIT III LIGHTS AND CAMERA**

**UNIT IV RENDERING AND ANIMATION**

**UNIT V 3D GRAPHICS PROGRAMMING**
3D Graphics programming using OpenGL and Java 3D or JOGL – Creating a 3D Scene by setting up objects – view - lights and other attributes.

**REFERENCES**


UNIT I  SUPPORTING TECHNOLOGIES

UNIT II  BROADCAST TECHNOLOGIES AND STANDARDS

UNIT III  BROADCAST / STUDIO AND PRODUCTION COMPONENTS

UNIT IV  BROADCAST SYSTEMS AND TRANSMITTER SYSTEMS

UNIT V  TEST AND MEASUREMENT

REFERENCES
   TMH publications, 2004

MM9152 WEB PROGRAMMING

UNIT I INTRODUCTION
Internet Principles – Basic Web Concepts – Client/Server model – Retrieving data from
Internet – Scripting Languages – Perl Programming – Next Generation Internet –
Protocols and applications.

UNIT II COMMON GATEWAY INTERFACE PROGRAMMING
HTML forms – CGI Concepts – HTML tags Emulation – Server–Browser communication
– E–mail generation – CGI Client side Applets – CGI Server Side Applets –

UNIT III XML
Creating Markup with XML – Document Type Definition – Schemas – Document Object
Model – Simple API for XML – Extensible Stylesheet languages – Formatting Objects –
Xpath – XLink and XPointer – Introduction to SOAP – Case Studies – Custom markup
languages.

UNIT IV SERVER SIDE PROGRAMMING
 Dynamic Web Content – Server Side – Communication – Active and Java Server Pages

UNIT V ONLINE APPLICATIONS
Database connectivity – Internet Information Systems – EDI application in business –
Internet commerce – Customization of Internet commerce.

TOTAL = 45

TEXT BOOKS:

1. Deitel and Deitel, Nieto, Sadhu, “XML How to Program”, Pearson Education
2. Eric Ladd, Jim O’Donnel, “Using HTML 4, XML and Java”, Prentice Hall of
   India – QUE, 1999.
3. Jeffy Dwight, Michael Erwin and Robert Niles, “Using CGI”, prentice Hall of
   India – QUE, 1999
4. Scot Johnson, Keith Ballinger, Davis Chapman, “Using Active Server Pages”,
**MM9153  CREATIVITY, INNOVATION AND PRODUCT DEVELOPMENT**

**UNIT I  INTRODUCTION**
The process of technological innovation – factors contributing to successful technological innovation – the need for creativity and innovation – creativity and problem solving – brain storming different techniques.

**UNIT II  PROJECT SELECTION AND EVALUATION**
Collection of ideas and purpose of project – Selection criteria – screening ideas for new products (evaluation techniques).

**UNIT III  NEW PRODUCT DEVELOPMENT**

**UNIT IV  NEW PRODUCT PLANNING**

**UNIT V  LABORATORY**
Creative design – Model Preparation – Testing – cost evaluation – Patent application

Total = 45

**REFERENCES**

SW9161 SOFTWARE AGENTS

UNIT I AGENTS – OVERVIEW
Agent Definition – Agent Programming Paradigms – Agent Vs Object – Aglet – Mobile Agents – Agent Frameworks – Agent Reasoning.

UNIT II JAVA AGENTS

UNIT III MULTIAGENT SYSTEMS

UNIT IV INTELLIGENT SOFTWARE AGENTS
Interface Agents – Agent Communication Languages – Agent Knowledge Representation – Agent Adaptability – Belief Desire Intension – Mobile Agent Applications.

UNIT V AGENTS AND SECURITY

TOTAL = 45

REFERENCES:
MM9154  NON-LINEAR EDITING

UNIT I  FUNDAMENTALS
Evolution of filmmaking - linear editing - non-linear digital video - Economy of Expression - risks associated with altering reality through editing.

UNIT II  STORYTELLING
Storytelling styles in a digital world through jump cuts, L-cuts, match cuts, cutaways, dissolves, split edits - Consumer and pro NLE systems - digitizing images - managing resolutions - mechanics of digital editing - pointer files - media management.

UNIT III  USING AUDIO AND VIDEO
Capturing digital and analog video – importing audio – putting video on – exporting digital video to tape – recording to CDs and VCDs.

UNIT IV  WORKING WITH FINAL CUT PRO 6
Working with clips and the Viewer - working with sequences, the Timeline, and the canvas - Basic Editing - Adding and Editing Testing  Effects - Advanced Editing and Training Techniques - Working with Audio - Using Media Tools - Viewing and Setting Preferences.

UNIT V  WORKING WITH AVID XPRESS DV 4
Starting Projects and Working with Project Window - Using Basic Tools and Logging - Preparing to Record and Recording - Importing Files - Organizing with Bins - Viewing and Making Footage - Using Timeline and Working in Trim Mode - Working with Audio - Output Options.

TOTAL = 60

REFERENCES:

UNIT I VISUALIZATION
Introduction – Issues – Data Representation – Data Presentation - Interaction

UNIT II FOUNDATIONS FOR DATA VISUALIZATION
Visualization stages – Experimental Semiotics based on Perception Gibson’s Affordance theory – A Model of Perceptual Processing – Types of Data.

UNIT III COMPUTER VISUALIZATION

UNIT IV MULTIDIMENSIONAL VISUALIZATION

UNIT V CASE STUDIES
Small interactive calendars – Selecting one from many – Web browsing through a key hole – Communication analysis – Archival analysis

TOTAL = 45

TEXT BOOKS:


REFERENCES:

UNIT I\[8\]
Human–Computer Interface – Characteristics Of Graphics Interface –Direct Manipulation

UNIT II\[7\]
User Interface Design Process – Obstacles –Usability –Human Characteristics In Design
– Human Interaction Speed –Business Functions –Requirement Analysis – Direct –
Indirect Methods – Basic Business Functions – Design Standards – General Design
Principles – Conceptual Model Design – Conceptual Model Mock-Ups

UNIT III\[12\]
Characteristics– Components– Presentation Styles– Types– Managements–
Characteristics– Screen – Based Controls — Human Consideration In Screen Design –
Structures Of Menus – Functions Of Menus– Contents Of Menu– Formatting – Phrasing
The Menu – Selecting Menu Choice– Navigating Menus– Graphical Menus. Operate
Control – Text Boxes– Selection Control– Combination Control– Custom Control–
Presentation Control.

UNIT IV\[9\]
Text For Web Pages – Effective Feedback– Guidance & Assistance–
Internationalization– Accessibility– Icons– Image– Multimedia – Coloring.

UNIT V\[9\]
Design Evaluation

Total = 45

TEXT BOOKS:
2. Deborah Mayhew, The Usability Engineering Lifecycle, Morgan Kaufmann,

REFERENCES:

CP9160 LANGUAGE TECHNOLOGIES

UNIT I INTRODUCTION

UNIT II INFORMATION RETRIEVAL

UNIT III TEXT MINING
Categorization – Extraction based Categorization- Clustering- Hierarchical Clustering- Document Classification and routing- finding and organizing answers from Text search – use of categories and clusters for organising retrieval results – Text Categorization and efficient Summarization using Lexical Chains – Pattern Extraction.

UNIT IV GENERIC ISSUES

UNIT V APPLICATIONS

TOTAL = 45

TEXT BOOKS:


REFERENCES:

CP9164 DATA WAREHOUSING AND DATA MINING

UNIT I

UNIT II

UNIT III

UNIT IV
UNIT V
Mining Object, Spatial, Multimedia, Text and Web Data:
Multidimensional Analysis and Descriptive Mining of Complex Data Objects – Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web.

REFERENCES
1. Jiawei Han and Micheline Kamber “Data Mining Concepts and Techniques” Second Edition,

CP9125 MOBILE AND PERVERSIVE COMPUTING

UNIT I
Wireless networks- emerging technologies- Blue tooth, WiFi, WiMAX, 3G ,WATM.- Mobile IP protocols -WAP push architecture-Wml scripts and applications.

UNIT II
Mobile computing environment—functions-architecture-design considerations ,content architecture -CC/PP exchange protocol ,context manager. Data management in WAE-Coda file system- caching schemes- Mobility QOS. Security in mobile computing.

UNIT III

UNIT IV
Pervasive Computing- Principles, Characteristics- interaction transparency, context aware, automated experience capture. Architecture for pervasive computing- Pervasive devices-embedded controls.- smart sensors and actuators -Context communication and access services

UNIT V
REFERENCES:

CP9170 SERVICE ORIENTED ARCHITECTURE

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
Transaction processing – paradigm – protocols and coordination – transaction specifications – SOA in mobile – research issues

REFERENCES:
SW9151 WEB DESIGN AND MANAGEMENT

UNIT I SITE ORGANIZATION AND NAVIGATION

UNIT II ELEMENTS OF PAGE DESIGN

UNIT III SCRIPTING LANGUAGES

UNIT IV PRE-PRODUCTION MANAGEMENT

UNIT V PRODUCTION, MAINTENANCE AND EVALUATION

TOTAL = 45

TEXT BOOKS:


REFERENCES:

The suggestions are as follows

- The third Unit in the syllabus may be revised to provide the students with simple applications.
- The scripting languages title includes languages as well as ‘CGI’ which is not a language
- The scripting languages may be divided into client side and server side
- Using the design rules a simple web site deployed on the server may be experimented with and justify the design and its functionality.
- The Ashley Book is not available in the dept library and may be procured
- Unit 2 and 4, new topics are added
- The teaching hours have been altered from the previous
- Two new books have been added which are really useful

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**CP9176**  
**HUMAN RESOURCE MANAGEMENT**  

<table>
<thead>
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<th>UNIT I</th>
<th>PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT</th>
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<tr>
<th>UNIT II</th>
<th>THE CONCEPT OF BEST FIT EMPLOYEE</th>
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<tr>
<th>UNIT III</th>
<th>TRAINING AND EXECUTIVE DEVELOPMENT</th>
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<tbody>
<tr>
<td></td>
<td>Types of training, methods, purpose, benefits and resistance. Executive development programmes – common practices - benefits – self development – knowledge management.</td>
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<th>UNIT IV</th>
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<tr>
<th>UNIT V</th>
<th>PERFORMANCE EVALUATION AND CONTROL PROCESS</th>
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<tr>
<td></td>
<td>Method of performance evaluation – feedback – industry practices. Promotion, demotion, transfer and separation – implication of job change. The control process –</td>
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TOTAL = 45

TEXT BOOKS:


REFERENCES: