UNIVERSITY DEPARTMENTS

ANNA UNIVERSITY CHENNAI : : CHENNAI 600 025

REGULATIONS - 2009

CURRICULUM I TO IV SEMESTERS (FULL TIME)

M.E. MULTIMEDIA TECHNOLOGY

SEMESTER I (5+1)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MA9110	Operations Research	3	1	0	4
2	IT9112	Data Structures and Algorithm Design	3	0	0	3
3	MM9111	Principles of Multimedia	3	0	0	3
4	CP9113	Advanced Computer Architecture	3	0	0	3
5	MM9112	Multimedia Communication and Networks	3	0	0	3
PRACTICAL						
6	MM9117	Multimedia Tools Laboratory	0	0	3	2
		TOTAL	**15**	**1**	**3**	**18**

SEMESTER II (6+1)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MM9121	Graphics Design and Presentation	3	0	0	3
2	MM9122	Multimedia Server Management	3	0	0	3
3	CP9167	Digital Image Processing	3	0	0	3
4	IT9122	Applied Cryptography	3	0	0	3
5	MM9123	Multimedia Databases	3	0	0	3
6	E1	Elective – I	3	0	0	3

PRACTICAL						
7	MM9127	Graphics Laboratory	0	0	3	2
		TOTAL	**18**	**0**	**3**	**20**

SEMESTER III (3+1)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MM9131	3D Modeling and Rendering	3	0	0	3
2	E2	Elective – II	3	0	0	3
3	E3	Elective – III	3	0	0	3
PRACTICAL						
4	MM9135	Project Phase – I	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

SEMESTER IV (0+1)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1	MM9141	Project Phase – II	0	0	24	12
		TOTAL	**0**	**0**	**24**	**12**

Total No of Credits : 65

No of Theory courses : 14

No of Lab Courses : 04

UNIVERSITY DEPARTMENTS

ANNA UNIVERSITY CHENNAI : : CHENNAI 600 025

REGULATIONS - 2009

CURRICULUM I TO VI SEMESTERS (PART TIME)

M.E. MULTIMEDIA TECHNOLOGY

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MA9110	Operations Research	3	1	0	4
2	MM9111	Principles of Multimedia	3	0	0	3
3	MM9112	Multimedia Communication Networks	3	0	0	3
		TOTAL	**9**	**1**	**0**	**10**

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MM9121	Graphics Design and Presentation	3	0	0	3
2	CP9167	Digital Image Processing	3	0	0	3
3	MM9123	Multimedia Databases	3	0	0	3
PRACTICAL						
4	MM9127	Graphics Laboratory	0	0	3	2
		TOTAL	**9**	**0**	**3**	**11**

SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C

THEORY						
1	IT9112	Data Structures and Algorithm Design	3	0	0	3
2	CP9113	Advanced Computer Architecture	3	0	0	3
PRACTICAL						
3	MM9117	Multimedia Tools Laboratory	0	0	3	2
		TOTAL	**6**	**0**	**3**	**8**

SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MM9122	Multimedia Server Management	3	0	0	3
2	IT9122	Applied Cryptography	3	0	0	3
3	E1	Elective I	3	0	0	3
		TOTAL	**9**	**0**	**0**	**9**

SEMESTER V

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MM9131	3 D Modeling and Rendering	3	0	0	3
2	E2	Elective II	3	0	0	3
3	E3	Elective III	3	0	0	3
PRACTICAL						
4	MM9135	Project Work (phase I)	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

SEMESTER VI

SL. NO	COURSE	COURSE TITLE	L	T	P	C

	CODE					
PRACTICAL						
1	MM9141	Project Work (Phase II)	0	0	24	12
		TOTAL	**0**	**0**	**24**	**12**

List of Electives

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
1	MM9151	Audio Video Broadcasting System	3	0	0	3
2	MM9152	Web Programming	3	0	0	3
3	MM9153	Creativity, Innovation and Product Development	3	0	0	3
4	**SW9161**	Software Agents	3	0	0	3
5	MM9154	Non – Linear Editing	3	0	0	3
6	CP9154	Visualization Techniques	3	0	0	3
7	CP9156	User Interface Design	3	0	0	3
8	CP9160	Language Technologies	3	0	0	3
9	CP9164	Data Warehousing and Data Mining	3	0	0	3
10	CP9125	Mobile and Pervasive Computing	3	0	0	3
11	CP9170	Service Oriented Architecture	3	0	0	3
12	SW9151	Web Design and Management	3	0	0	3
13	CP9176	Human Resources Management	3	0	0	3

MA9110 OPERATIONS RESEARCH

L T P C
3 1 0 4

UNIT I QUEUEING MODELS 9

Poisson Process – Markovian Queues – Single and Multi-server Models – Little's formula – Machine Interference Model – Steady State analysis – Self Service Queue.

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

Formulation – Graphical solution – Simplex method – Two phase method - Transportation and Assignment Problems.

UNIT V NON-LINEAR PROGRAMMING 9

Lagrange multipliers – Equality constraints – Inequality constraints – Kuhn – Tucker conditions – Quadratic Programming.

L + T: 45+15 =60

TEXT BOOKS

1. Winston.W.L. "Operations Research", Fourth Edition, Thomson – Brooks/Cole, 2003.
2. Taha, H.A. "Operations Research: An Introduction", Ninth Edition, Pearson Education Edition, Asia, New Delhi, 2002.

REFERENCES

1. Robertazzi. T.G. "Computer Networks and Systems – Queuing Theory and Performance Evaluation", Third Edition, Springer, 2002 Reprint.
2. Ross. S.M., "Probability Models for Computer Science", Academic Press, 2002.

IT9112 DATA STRUCTURES AND ALGORITHM DESIGN 3 0 0 3

1. Fundamentals 9

Mathematical Induction - Asymptotic Notations – Properties of Big-oh Notation – Conditional Asymptotic Notation – Algorithm Analysis – Amortized Analysis – NP-Completeness – NP-Hard – Recurrence Equations – Solving Recurrence Equations – Memory Representation of Multi-dimensional Arrays – Time-Space Tradeoff.

2. Data Structures 9

Min/Max heaps – Leftist Heaps – Skew Heaps – AVL Trees – Red-Black Trees – B-Trees – Splay Trees – Tries.

3. Algorithm Design: I 9

Divide and Conquer strategy – Selection of k-th Smallest Elements – Convex Hull – Strassen's Matrix Multiplication – Greedy Approach – Container Loading – Tree Vertex Splitting – Optimal Merge Patterns.

4. Algorithm Design: II 9

Dynamic Programming Approach – Principle of Optimality – String Editing – Flow Shop Scheduling – Connected Components – Bi-Connected Components Graph Coloring using Backtracking Technique – Branch and Bound Methodoloy.

5. Approximation Algorithms 9

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

TOTAL = 45

References:

1. E. Horowitz, S.Sahni and Dinesh Mehta, Fundamentals of Data structures in C++, Uiversity Press, 2007.
2. E. Horowitz, S. Sahni and S. Rajasekaran, Computer Algorithms/C++, Second Edition, University Press, 2007.
3. G. Brassard and P. Bratley, Algorithmics: Theory and Practice, Printice – Hall, 1988.

MM9111 PRINCIPLES OF MULTIMEDIA

L T P C
3 0 0 3

UNIT I INTRODUCTION 7

Introduction to Multimedia – Characteristics – Utilities – Creation -Uses – Promotion – Digital Representation – Media and Data streams – Multimedia Architecture – Multimedia Documents

UNIT II ELEMENTS OF MULTIMEDIA 11

Text : types – font - Unicode standard - text compression - file formats. – Image: types - image processing – standards - specification - device independent color models - gamma correction - file formats – Video :video signal transmission - signal formats - broadcasting standards - digital video standards - PC video - video file formats – Audio : acoustics - characteristics of sound - elements of audio system – microphone – amplifier – loudspeaker - audio mixer - digital audio - MIDI – Graphics – components of graphics system, co-ordinate system – plotter - Intro to 2D & 3D Graphics -surface characteristics and texture - lights – Animation :key frames & Tweening, techniques, principles of animation, 3D animation, file formats.

UNIT III MULTIMEDIA SYSTEMS 9

Visual Display Systems – CRT - video adapter card - video adapter cable – LCD – PDP - optical storage media - CD technology - DVD Technology - Compression Types and Techniques – CODEC - GIF coding standards - lossy and lossless – JPEG - MPEG-1 - MPEG-2 - MP3 - Fractals – MMDBS

UNIT IV MULTIMEDIA TOOLS 9

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 9

Software life cycle – ADDIE Model – conceptualization – content collection and processing – story – flowline – script - storyboard - implementation - multiplatform issues – authoring – metaphors – testing – report writing - documentation - case study: -Web Application – Console Application – Distributed Application – Mobile Application - games consoles – iTV – kiosks – education

TOTAL = 45

TEXT BOOKS

1. Parekh R “Principles Of Multimedia” Tata McGraw-Hill, 2006.
2. Ralf Steinmetz, Klara Nahrstedt, “Multimedia: Computing, Communications and Applications” Prentice Hall, 1995.

REFERENCES

1. Tay Vaughan, “Multimedia: Making It Work” McGraw-Hill Professional, 2006

2. Deitel & Deitel "Internet & World Wide Web How to Program", Fourth Edition – Prentice Hall, 2008.

CP9113 ADVANCED COMPUTER ARCHITECTURE

L T P C
3 0 0 3

UNIT I PIPELINING AND ILP 9

Fundamentals of Computer Design - Measuring and Reporting Performance - Instruction Level Parallelism and Its Exploitation - Concepts and Challenges - Overcoming Data Hazards with Dynamic Scheduling – Dynamic Branch Prediction - Speculation - Multiple Issue Processors – Case Studies.

UNIT II ADVANCED TECHNIQUES FOR EXPLOITING ILP 9

Compiler Techniques for Exposing ILP - Limitations on ILP for Realizable Processors - Hardware versus Software Speculation - Multithreading: Using ILP Support to Exploit Thread-level Parallelism - Performance and Efficiency in Advanced Multiple Issue Processors - Case Studies.

UNIT III MULTIPROCESSORS 9

Symmetric and distributed shared memory architectures – Cache coherence issues - Performance Issues – Synchronization issues – Models of Memory Consistency - Interconnection networks – Buses, crossbar and multi-stage switches.

UNIT IV MULTI-CORE ARCHITECTURES 9

Software and hardware multithreading – SMT and CMP architectures – Design issues – Case studies – Intel Multi-core architecture – SUN CMP architecture – IBM cell architecture.- hp architecture.

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

1. John L. Hennessey and David A. Patterson, " Computer Architecture – A quantitative approach", Morgan Kaufmann / Elsevier, 4th. edition, 2007.
2. David E. Culler, Jaswinder Pal Singh, "Parallel Computing Architecture : A hardware/ software approach" , Morgan Kaufmann / Elsevier, 1997.
3. William Stallings, " Computer Organization and Architecture – Designing for Performance", Pearson Education, Seventh Edition, 2006.

MM9112 MULTIMEDIA COMMUNICATION AND NETWORKS

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3	0	0	3

UNIT I IP NETWORKS 9

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 9

Intra AS routing – Inter AS routing – Router Architecture – Switch Fabric – Active Queue Management – Head of Line blocking – Transition from IPv4 to IPv6 – Multicasting – Abstraction of Multicast groups – Group Management – IGMP – Group Shared Multicast Tree – Source based Multicast Tree – Multicast routing in Internet – DVMRP and MOSPF – PIM – Sparse mode and Dense mode

UNIT III GUARANTEED SERVICE MODEL 9

Best Effort service model – Scheduling and Dropping policies – Network Performance Parameters – Quality of Service and metrics – WFQ and its variants – Random Early Detection – QoS aware Routing – Admission Control – Resource Reservation – RSVP - Traffic Shaping Algorithms – Caching – Laissez Faire Approach - Possible Architectures – An Overview of QoS Architectures

UNIT IV MULTIMEDIA COMMUNICATION 9

Stream characteristics for Continuous media – Temporal Relationship – Object Stream Interactions, Media Levity, Media Synchronization – Models for Temporal Specifications – Streaming of Audio and Video – Jitter – Fixed playout and Adaptive playout – Recovering from packet loss – RTSP –– Multimedia Communication Standards – RTP/RTCP – SIP and H.263

UNIT V WIRELESS MULTIMEDIA COMMUNICATION 9

End to End QoS provisioning in Wireless Multimedia Networks – Adaptive Framework – MAC layer QoS enhancements in Wireless Networks – A Hybrid MAC protocol for Multimedia Traffic – Call Admission Control in Wireless Multimedia Networks – A Global QoS Management for Wireless Networks

REFERENCES

1. Jean Warland and Pravin Vareya, 'High Performance Networks', Morgan Kauffman Publishers, 2002
2. Mahbub Hassan and Raj Jain, 'High Performance TCP/IP Networking', Pearson Education, 2004.
3. William Stallings, 'High Speed Networks: Performance and Quality of Service', 2nd Edition, Pearson Education, 2002.
4. Kurose and Ross, 'Computer Networks : A top down Approach', Pearson Education, 2002

5. Nalin K Sharda, 'Multimedia Information Networking', Prentice Hall of India, 1999
6. Aura Ganz, Zvi Ganz and Kitti Wongthawaravat, 'Multimedia Wireless Networks: Technologies, Standards and QoS', Prentice Hall, 2003.
7. Ellen Kayata Wesel, 'Wireless Multimedia Communications: Networking Video, Voice and Data', Addision Wesley, 1998

MM9117 MULTIMEDIA TOOLS LABORATORY

L T P C
0 0 3 2

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

L T P C

3 0 0 3

UNIT I INTRODUCTION **6**

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

UNIT II 2D GRAPHICS **9**

2D Transformations – Window View port mapping – Clipping algorithms – polygons – Splines – Bezier carves – Basics.

UNIT III 3D GRAPHICS **12**

3D concepts – Representations – 3D transformation - Projections – Hidden surface removal – Visualization and rendering – Color models – Textures.

UNIT IV OVERVIEW OF MULTIMEDIA **9**

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

UNIT V MULTIMEDIA SYSTEMS AND APPLICATIONS **9**

Multimedia Communication Systems – Database Systems – Synchronization issues – Presentation requirements – Applications – Video conferencing – Virtual reality – Interactive Video – Media on Demand.

TOTAL = 45

REFERENCES

1. Donald Hearn, M. Pauline Baker, “Computer Graphics – C Version”, second edition, Pearson Education, 2006.
2. Ralf Steinmetz, Klara Steinmetz, “Multimedia Computing, Communications & Applications” Pearson Education, 2004.
3. Tay Vaughan, “Multimedia Making It Work”, McGraw Hill, 7 th edition, 2006.
4. J. D. Foley, A. VanDam, S. K. Feiner, J. F. Hughes, “Computer Graphics Principles and Practice”, Addison and Wesley Publications, 2002.
5. Ze-Nian Li, Mark S. Drew, “Fundamentals Of Multimedia ”, PHI, 2004.

MM9122 MULTIMEDIA SERVER MANAGEMENT

L T P C

3 0 0 3

UNIT I MULTIMEDIA SERVER APPLICATIONS AND ENVIRONMENTS 9

Introduction - multimedia server environment – requirements – client environment – network environment - ATM model - multimedia server architecture and components – hardware – software – server topology.

UNIT II SCHEDULING 9

Client Session Scheduling – QoS specification – capacity estimation – logical channel setup – client request Scheduling – client scheduling issues – VCR control operations – batching policies – time-varying workloads - scheduling in system components.

UNIT III THE STORAGE SUB SYSTEM 9

Storage management overview – storage system architecture – placement of multimedia data in storage devices – retrieval – issues in I/O scheduling - single disk issue - multiple disk organization – NAS architecture – management – SAN architecture – management – issues - storage hierarchy.

UNIT IV CACHE MANAGEMENT 9

Caching overview – objectives – data prefetching - relationships to buffering and caching – cache management policies - memory cache – caching policies - caching among disks - distributed disk caching - storage networks - management of storage networks.

UNIT V RELATED ISSUES 9

Performance evaluation - affinity routing - load balancing – network backup services – back up clients - performance gains as a result of network backups –deadline driven scheduling & unconstrained data placement - fault tolerance issues in media servers.

TOTAL = 45

TEXT BOOKS

1. Dinker Sitaram, Asit Dan, “Multimedia Servers - Applications, Environments and Design”, Morgan Kaufmann Publishers, 2000.

2. Ali Dashti, Seon Ho Kim, Cyrus Shahabi, and Roger Zimmermann “Streaming Media Server Design”, IMSC Press Multimedia Series, 2003.

3. Ulf Troppens, Rainer Erkens, Wolfgang Müller, and Rachael Waddington, “Storage Networks Explained: Basics and Application of Fibre Channel SAN, NAS iSCSI and InfiniBand”, John Wiley and sons, 2004.

REFERENCES

1. W.Curtis Preston, “Using SANs and NAS”, O'Reilly Media, Inc., 2002.

2. S. Ghandeharizadeh, S. Kim, C. Shahabi and R. Zimnorman, “Multimedia Information Storage Management”, Kluwer Academic Press, 1996.

3. C. K. Wong, “Algorithmic Studies in mass Storage Systems”, Computer Science Press, New York, 1983.

CP9167 DIGITAL IMAGE PROCESSING

L	T	P	C
3	0	0	3

UNIT I FUNDAMENTALS OF IMAGE PROCESSING 9

Introduction – Elements of visual perception, Steps in Image Processing Systems – Image Acquisition – Sampling and Quantization – Pixel Relationships – Colour Fundamentals and Models, File Formats. Introduction to the Mathematical tools.

UNIT II IMAGE ENHANCEMENT AND RESTORATION 9

Spatial Domain Gray level Transformations Histogram Processing Spatial Filtering – Smoothing and Sharpening. Frequency Domain: Filtering in Frequency Domain – DFT, FFT, DCT, Smoothing and Sharpening filters – Homomorphic Filtering., Noise models, Constrained and Unconstrained restoration models.

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UNIT III IMAGE SEGMENTATION AND FEATURE ANALYSIS 9

Detection of Discontinuities – Edge Operators – Edge Linking and Boundary Detection – Thresholding – Region Based Segmentation – Motion Segmentation, Feature Analysis and Extraction.

UNIT IV MULTI RESOLUTION ANALYSIS AND COMPRESSIONS 9

Multi Resolution Analysis: Image Pyramids – Multi resolution expansion – Wavelet Transforms, Fast Wavelet transforms, Wavelet Packets.

Image Compression: Fundamentals – Models – Elements of Information Theory – Error Free Compression – Lossy Compression – Compression Standards – JPEG/MPEG.

UNIT V APPLICATIONS OF IMAGE PROCESSING 9

Representation and Description, Image Recognition- Image Understanding – Image Classification – Video Motion Analysis – Image Fusion – Steganography – Colour Image Processing.

TOTAL = 45

REFERENCES

1. Rafael C.Gonzalez and Richard E.Woods, “Digital Image Processing”, Third Edition, Pearson Education, 2008.
2. Milan Sonka, Vaclav Hlavac and Roger Boyle, “Image Processing, Analysis and Machine Vision”, Third Edition, Third Edition, Brooks Cole, 2008.
3. Anil K.Jain, “Fundamentals of Digital Image Processing”, Prentice-Hall India, 2007.
4. Madhuri A. Joshi, ‘Digital Image Processing: An Algorithmic Approach”, Prentice-Hall India, 2006.
5. Rafael C.Gonzalez , Richard E.Woods and Steven L. Eddins, “Digital Image Processing Using MATLAB”, First Edition, Pearson Education, 2004.

IT9122 APPLIED CRYPTOGRAPHY

L T P C
3 0 0 3

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

Block Cipher and the Advanced Encryption Standard-Substitution -Permutation Netrworks, Linear Cryptanalysis, Differential Cryptoanalysis , The Data Encryption Standard, The Advanced Encryption Standard, Modes of Operation ,Cryptography Hash Function- Hash Function and Data Integrity,Security of Hash Function ,Iterated Hash Functions, Message Authentication Codes.

UNIT III

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

UNIT IV

Identification Scheme and Entity Attenuation-Challenge – and – Response in the Secret-key Setting,Challenge – and – Response in the Public key Setting,The Schnorr Identificataon Scheme,Key distribution-Diffie-Hellman Key, Predustribution,Unconditionaly Secure key Predistribution,Key Agreement Scheme-Diffie-Hellman Key agreement,Public key infrastructure-PKI,Certificates,Trust Models.

UNIT V

Secret Sharing Schemes-The Shamir Threshold Scheme,Access Structure and General Scret key sharing,Informataion Rate and Construction of Effcient Schemes,Multicast Securuty and Copyright production-Multicast Security,Braodcast Encryption ,Multicast Re-keying,Copyright Protection ,Tracing Illegally Redistribution keys.

TOTAL : 45

TEXT BOOK

1. Douglas R. Stinson ,“Cryptography Theory and Practice ”, Third Edition, Chapman & Hall/CRC,2006

REFERENCES

1. Menges A. J , Oorschot P, Vanstone S.A,“Handbollk of Appliled Cryptography” CRC Press,1997.

2. William Stallings, “Cryptography and Network Security: Principles and Practices”, Third Edition, Pearson Education,2006.

3. Wenbo Mao, “Modern Cryptography – Theory and Practice”, Pearson Education, First Edition, 2006.
4. Charles B. Pfleeger, Shari Lawrence Pfleeger, “Security in Computing”, Fourth Edition, Pearson Education, 2007.
5. Wade Trappe and Lawrence C. Washington, “Intrduction to Cryptography with Coding Theory” Second Edition, Pearson Education, 2007.

MM9123 MULTIMEDIA DATABASES

L T P C
3 0 0 3

UNIT I **9**

Basics of Database Management Systems - Relational Model – SQL, Functional Dependencies - Normal Forms – Multivalued Dependencies, Join Dependencies – Examples - An introduction to Object-oriented Databases.

UNIT II **9**

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

UNIT III **9**

Text/Document Databases - Precision and Recall - Stop Lists - Word Stems and Frequency Tables - Latent Semantic Indexing - TV-Trees - Other Retrieval Techniques
Image Databases - Raw Images - Compressed Image Representations - Similarity-Based Retrieval - Alternative Image DB Paradigms - Representing Image DBs with Relations - Representing Image DBs with R-Trees - Retrieving Images By Spatial Layout - Implementations.

UNIT IV **9**

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 **9**

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

TOTAL = 45

REFERENCES:

1. V. S. Subramanian, “Principles of Multimedia Database Systems”, Elsevier Publishers, 1998.
2. Elmasri and ***Navathe*** Fundamentals of Database Systems, 4th Edition, Addison Wesley, 2003. S. Subramanian, “Principles of Multimedia Database Systems”, Elsevier, 1998.
3. C. J. Date, “An Introduction to Database Systems”, Seventh Edition, Pearson Education, 2000.
4. S. Khoshafian and A. B. Bakor, “Multimedia and Imaging Databases”, Elsevier, 1996.
5. Kingsley C. Nwosu, “Multimedia Database Systems: Design and Implementation Strategies”, Kluwer Academic Publishers, 1996.
6. Prabhakaran, “Multimedia Database Management Systems”, Springer, 1st Edition, 1996.
7. Lynne Dunckley, “Multimedia Databases: An Object-Relational Approach”**,** Pearson Education, 2003.

MM9127 GRAPHICS LABORATORY

L T P C
0 0 3 2

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

L T P C
3 0 0 3

UNIT I INTRODUCTION 9

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 9

Procedural and Bitmap textures - Texture mapping an image – Bump mapping – Environment mapping – Interpolation - Magnification and Minification, Mipmapped textures - Adding textures on to curved surfaces - Animated textures, Tiling - rendering textures.

UNIT III LIGHTS AND CAMERA 9

Shading models – Diffuse and secular reflections – Ambient light – Combining light contributions – Adding Color –Flat Shading – Smooth Shading -Phong, Gouraud. Camera Basics - Camera Movement - Directing the Camera.

UNIT IV RENDERING AND ANIMATION 9

Wire frame –Hidden surface removal– Ray tracing methods – Volume Rendering - Radiosity methods – Kinematics, Rigid body animation, collision detection.

UNIT V 3D GRAPHICS PROGRAMMING 9

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

TOTAL = 45

REFERENCES

1. F. S. Hill Jr., Stephen Kelly, “Computer Graphics Using OpenGL”, 3rd Edition, Pearson Education/PHI Learning, 2007.

2. Mark Giambruno, " 3D Graphics and Animation", 2nd Edition, New Riders Press, 2002.

3. Donald Hearn, M. Pauline Baker, "Computer Graphics – C Version", Pearson Education/ PHI Learning, 2004.

4. Chen, Jim X., Chen, Chunyang, "Foundations of 3D Graphics Programming using JOGL and Java 3D, Springer, 2nd edition, 2008.

5. James D. Foley, Andries van Dam, K. Feiner, John F. Hughes, "Computer Graphics- principles and practice", Pearson Education, Second Edition, 2003.

6. Alan Watt, "3D Computer Graphics", Addison Wesley/Pearson Ed.,, 3rd Edition, December 1999.

MM9151 AUDIO-VIDEO BROADCASTING SYSTEMS

L	T	P	C
3	0	0	3

UNIT I SUPPORTING TECHNOLOGIES 9

Quantities and Units – Information Theory and Error Correction – Coaxial Cable and Optical Fibres – TCP/IP Networking – SAN and NAS Technologies – Telco Technologies – Colour Displays and colorimetry.

UNIT II BROADCAST TECHNOLOGIES AND STANDARDS 9

Linear Digital Audio – Non Linear Audio Systems – Television Standards and Broadcasting Spectrum – Colour Encoding and decoding Systems – Timecode –Sound in Syncs – VBI Data Carriage – Digital Interfaces for Broadcast Signals – Storage File Formats – HDTV Standards – MPEG-2 – DVB standards –Data Broadcast – ATSC Video, Audio and PSIP Transmission – Interactive TV – Encryption systems.

UNIT III BROADCAST / STUDIO AND PRODUCTION COMPONENTS 9

Sound Origination Equipment – Lens Systems and Optics – Optical Sensors – Studio Cameras and Camcorders – VTR Technology – Television Standards Conversion – Television studio centers – Studio cameras ad lighting – Talkback and Communication Systems – Visual Effects –Editing, Mixers and Switchers – Sound Mixing and Control, Surround sound- Routers and Matrices – Transmission Systems..

UNIT IV BROADCAST SYSTEMS AND TRANSMITTER SYSTEMS HARDWARE 9

Broadcast mobile control rooms – Microwave links for OB and ENG – Battery Systems – Electrical Systems for Outside Broadcast – Radio frequency propagation – Thermionics, Power grid and linear beam tubes – Transposes – Satellite distribution – Microwave radio relay systems – Up-link Terminals – Intercity Links and switching centers – Masts, Towers and Antennas.

UNIT V TEST AND MEASUREMENT 9

Television Performance Measurements – Digital Video Systems Test and Measurement - Audio Systems Test and Measurement – Broadcast Engineering RF Measurements – Digital RF Measurements – Systems Monitoring and Management.

Total = 45

REFERENCES

1. EPJ Tozer, "Broadcast Engineer's Reference Book", Elsevier, 2004.

2. Jerry C.Whitaker and K. Blair Benson, “Standard Handbook of Broadcast Engineering”,
TMH publications, 2004

3. Michael Talbot Smith, “Broadcast Sound Technology” Focal publisher, 2 nd Edition, 1995.

MM9152 WEB PROGRAMMING

L T P C
3 0 0 3

UNIT I INTRODUCTION 9

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 9

HTML forms – CGI Concepts – HTML tags Emulation – Server–Browser communication – E–mail generation – CGI Client side Applets – CGI Server Side Applets – Authorization and Security – CGI programs using Perl.

UNIT III XML 9

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 9

Dynamic Web Content – Server Side – Communication – Active and Java Server Pages – Firewalls – Proxy Servers – Web Service Implementation.

UNIT V ONLINE APPLICATIONS 9

Simple applications – On–line Databases – Monitoring User Events – Plug–ins – 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 publishers, 2001.
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”, Prentice Hall of India, 1999.

MM9153 CREATIVITY, INNOVATION AND PRODUCT DEVELOPMENT

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UNIT I INTRODUCTION 8

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 8

Collection of ideas and purpose of project – Selection criteria – screening ideas for new products (evaluation techniques).

UNIT III NEW PRODUCT DEVELOPMENT 7

Research and new product development – Patents – patent search – Patent laws – International code for patents – Intellectual property rights (IPR).

UNIT IV NEW PRODUCT PLANNING 7

Design of proto type – testing – quality standards – marketing research – introducing new products.

UNIT V LABORATORY 15

Creative design – Model Preparation – Testing – cost evaluation – Patent application

Total = 45

REFERENCES

1. Harry Nystrom, “Creativity and Innovation”, John Wiley & Sons, 1979.
2. Brain Twiss, “Managing Technological Innovation”, Pitman Publishing Ltd., 1992.
3. Harry B.Watton, “New Product Planning”, Prentice-Hall Inc., 1992.
4. P.N.Khandwalla, “Fourth Eye (Excellence through Creativity), Wheeler Publishing, Allahabad, 1992.
5. I.P.R. Bulletins, TIFAC, New Delhi, 1997.

SW9161 SOFTWARE AGENTS

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UNIT I AGENTS – OVERVIEW 9

Agent Definition – Agent Programming Paradigms – Agent Vs Object – Aglet – Mobile Agents – Agent Frameworks – Agent Reasoning.

UNIT II JAVA AGENTS 9

Processes – Threads – Daemons – Components – Java Beans – ActiveX – Sockets – RPCs – Distributed Computing – Aglets Programming – Jini Architecture – Actors and Agents – Typed and proactive messages.

UNIT III MULTIAGENT SYSTEMS 9

Interaction between agents – Reactive Agents – Cognitive Agents – Interaction protocols – Agent coordination – Agent negotiation – Agent Cooperation – Agent Organization – Self-Interested agents in Electronic Commerce Applications.

UNIT IV INTELLIGENT SOFTWARE AGENTS 9

Interface Agents – Agent Communication Languages – Agent Knowledge Representation – Agent Adaptability – Belief Desire Intension – Mobile Agent Applications.

UNIT V AGENTS AND SECURITY 9

Agent Security Issues – Mobile Agents Security – Protecting Agents against Malicious Hosts – Untrusted Agent – Black Box Security – Authentication for agents – Security issues for Aglets.

TOTAL = 45

REFERENCES:

1. Bigus & Bigus, " Constructing Intelligent agents with Java ", Wiley, 1997.
2. Bradshaw, " Software Agents ", MIT Press, 2000.
3. Russel, Norvig, "Artificial Intelligence: A Modern Approach", Second Edition, Pearson Education, 2003.
4. Richard Murch, Tony Johnson, "Intelligent Software Agents", Prentice Hall, 2000.
5. Gerhard Weiss, “Multi Agent Systems – A Modern Approach to Distributed Artificial Intelligence”, MIT Press, 2000.

MM9154 NON-LINEAR EDITING

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UNIT I FUNDAMENTALS 8

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

UNIT II STORYTELLING 12

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 12

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 14

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 14

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:

1. Robert M. Goodman and Partick McGarth, “Editing Digital Video: The Complete Creative and Technical Guide”, Digital Video and Audio, McGraw-Hill 2003.
2. Keith Underdahl, “Digital Video for Dummies”, Third Edition, Dummy Series, 2001.
3. Final Cut Pro 6 User Manual, 2004.
4. Avid Xpress DV 4 User Guide, 2007.

CP9154 VISUALIZATION TECHNIQUES

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UNIT I VISUALIZATION **9**

Introduction – Issues – Data Representation – Data Presentation - Interaction

UNIT II FOUNDATIONS FOR DATA VISUALIZATION **9**

Visualization stages – Experimental Semiotics based on Perception Gibson's Affordance theory – A Model of Perceptual Processing – Types of Data.

UNIT III COMPUTER VISUALIZATION **9**

Non-Computer Visualization – Computer Visualization: Exploring Complex Information Spaces – Fisheye Views – Applications – Comprehensible Fisheye views – Fisheye views for 3D data – Non Linear Magnificaiton – Comparing Visualization of Information Spaces – Abstraction in computer Graphics – Abstraction in user interfaces.

UNIT IV MULTIDIMENSIONAL VISUALIZATION **9**

One Dimension – Two Dimensions – Three Dimensions – Multiple Dimensions – Trees – Web Works – Data Mapping: Document Visualization – Workspaces.

UNIT V CASE STUDIES **9**

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

TOTAL = 45

TEXT BOOKS:

1. Colin Ware, "Information Visualization Perception for Design" Margon Kaufmann Publishers, 2004, 2nd edition.
2. Robert Spence "Information visualization – Design for interaction", Pearson Education, 2 nd Edition, 2007

REFERENCES:

1. Stuart.K.Card, Jock.D.Mackinlay and Ben Shneiderman, "Readings in Information Visualization Using Vision to think", Morgan Kaufmann Publishers.

CP9156 USER INTERFACE DESIGN

L T P C
3 0 0 3

UNIT I INTRODUCTION 8

Human–Computer Interface – Characteristics Of Graphics Interface –Direct Manipulation Graphical System – Web User Interface –Popularity –Characteristic & Principles.

UNIT II HUMAN COMPUTER INTERACTION 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 WINDOWS 12

Characteristics– Components– Presentation Styles– Types– Managements– Organizations– Operations– Web Systems– System Timings - Device– Based Controls 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 MULTIMEDIA 9

Text For Web Pages – Effective Feedback– Guidance & Assistance– Internationalization– Accessibility– Icons– Image– Multimedia – Coloring.

UNIT V EVALUATION 9

Conceptual Model Evaluation – Design Standards Evaluation – Detailed User Interface Design Evaluation

Total = 45

TEXT BOOKS:

1. Wilbent. O. Galitz ,“The Essential Guide To User Interface Design”, John Wiley& Sons, 2001.
2. **Deborah Mayhew, The Usability Engineering Lifecycle,** Morgan Kaufmann, 1999Ben Shneiderman, “Design The User Interface”, Pearson Education, 1998.

REFERENCES:

1. Alan Cooper, “The Essential Of User Interface Design”, Wiley – Dream Tech Ltd., 2002. Sharp, Rogers, Preece, ‘Interaction Design’, Wiley India Edition, 2007

CP9160 LANGUAGE TECHNOLOGIES

L T P C
3 0 0 3

UNIT I INTRODUCTION 9

Natural Language Processing – Linguistic Background- Spoken language input and output Technologies – Written language Input - Mathematical Methods - Statistical Modeling and Classification Finite State methods Grammar for Natural Language Processing – Parsing – Semantic and Logic Form – Ambiguity Resolution – Semantic Interpretation.

UNIT II INFORMATION RETRIEVAL 9

Information Retrieval architecture - Indexing- Storage – Compression Techniques – Retrieval Approaches – Evaluation - Search engines- commercial search engine features- comparison- performance measures – Document Processing - NLP based Information Retrieval – Information Extraction.

UNIT III TEXT MINING 9

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 9

Multilinguality – Multilingual Information Retrieval and Speech processing - Multimodality – Text and Images – Modality Integration - Transmission and Storage – Speech coding- Evaluation of systems – Human Factors and user Acceptability.

UNIT V APPLICATIONS 9

Machine Translation – Transfer Metaphor - Interlingua and Statistical Approaches - Discourse Processing – Dialog and Conversational Agents – Natural Language Generation – Surface Realization and Discourse Planning.

TOTAL = 45

TEXT BOOKS:

1. Daniel Jurafsky and James H. martin, “ Speech and Language Processing” , 2000.
2. Ron Cole, J.Mariani, et.al “Survey of the State of the Art in Human Language Technology”, Cambridge University Press, 1997.

3. Michael W. Berry " Survey of Text Mining: Culstering, Classification and Retrieval", Springer Verlag, 2003.
4. Christopher D.Manning and Hinrich Schutze, " Foundations of Statistical Natural Language Processing ", MIT Press, 1999.

REFERENCES:

1. James Allen " Natural Language Understanding ", Benjamin/ Cummings Publishing Co. 1995.
2. Gerald J. Kowalski and Mark.T. Maybury, "Information Storage and Retrieval systems", Kluwer academic Publishers, 2000.
3. Tomek Strzalkowski " Natural Language Information Retrieval ", Kluwer academic Publishers, 1999.
4. Christopher D.Manning and Hinrich Schutze, " Foundations of Statistical Natural Language Processing ", MIT Press, 1999.

CP9164 DATA WAREHOUSING AND DATA MINING

L T P C
3 0 0 3

UNIT I **9**

Data Warehousing and Business Analysis: - Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata – reporting – Query tools and Applications – Online Analytical Processing (OLAP) – OLAP and Multidimensional Data Analysis.

UNIT II **9**

Data Mining: - Data Mining Functionalities – Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation.
Association Rule Mining: - Efficient and Scalable Frequent Item set Mining Methods – Mining Various Kinds of Association Rules – Association Mining to Correlation Analysis – Constraint-Based Association Mining.

UNIT III **9**

Classification and Prediction: - Issues Regarding Classification and Prediction – Classification by Decision Tree Introduction – Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Section.

UNIT IV **9**

Cluster Analysis: - Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods – Density-Based Methods – Grid-Based Methods – Model-Based Clustering Methods – Clustering High-Dimensional Data – Constraint-Based Cluster Analysis – Outlier Analysis.

UNIT V **9**

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.

Total = 45

REFERENCES

1. Jiawei Han and Micheline Kamber “Data Mining Concepts and Techniques” Second Edition,
2. Elsevier, Reprinted 2008.
3. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
4. K.P. Soman, Shyam Diwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
5. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
6. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.

CP9125 MOBILE AND PERVASIVE COMPUTING

L T P C
3 0 0 3

UNIT I **9**

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

UNIT II **9**

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 **8**

Handoff in wireless mobile networks-reference model-handoff schemes. Location management in cellular networks - Mobility models- location and tracking management schemes- time, movement ,profile and distance based update strategies. ALI technologies.

UNIT IV **10**

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 **10**

Open protocols- Service discovery technologies- SDP, Jini, SLP, UpnP protocols–data synchronization- SyncML framework - Context aware mobile services -Context aware sensor networks, addressing and communications. Context aware security.

REFERENCES:

1. Ivan Stojmenovic , Handbook of Wireless Networks and Mobile Computing, John Wiley & sons Inc, Canada, 2002.
2. Asoke K Taukder,Roopa R Yavagal,Mobile Computing, Tata McGraw Hill Pub Co. , New Delhi, 2005.
3. Seng Loke, Context-Aware Computing Pervasive Systems, Auerbach Pub., New York, 2007.
4. Uwe Hansmann etl , Pervasive Computing, Springer, New York,2001.

CP9170 SERVICE ORIENTED ARCHITECTURE

L T P C
3 0 0 3

UNIT I **9**

Software Architecture – Types of IT Architecture – SOA – Evolution – Key components – perspective of SOA – Enterprise-wide SOA – Architecture – Enterprise Applications – Solution Architecture for enterprise application – Software platforms for enterprise Applications – Patterns for SOA – SOA programming models

UNIT II **9**

Service-oriented Analysis and Design – Design of Activity, Data, Client and business process services – Technologies of SOA – SOAP – WSDL – JAX – WS – XML WS for .NET – Service integration with ESB – Scenario – Business case for SOA – stakeholder objectives – benefits of SPA – Cost Savings

UNIT III **9**

SOA implementation and Governance – strategy – SOA development – SOA governance – trends in SOA – event-driven architecture – software s a service – SOA technologies – proof-of-concept – process orchestration – SOA best practices

UNIT IV **9**

Meta data management – XML security – XML signature – XML Encryption – SAML – XACML – XKMS – WS-Security – Security in web service framework - advanced messaging

UNIT V **9**

Transaction processing – paradigm – protocols and coodination – transaction specifications – SOA in mobile – research issues

REFERENCES:

1. Shankar Kambhampaly, “Service –Oriented Architecture for Enterprise Applications”, Wiley India Pvt Ltd, 2008.
2. Eric Newcomer, Greg Lomow, “Understanding SOA with Web Services”, Pearson Education.
3. Mark O’ Neill, et al. , “Web Services Security”, Tata McGraw-Hill Edition, 2003.

SW9151 WEB DESIGN AND MANAGEMENT

L T P C
3 0 0 3

UNIT I SITE ORGANIZATION AND NAVIGATION 9

User centered design – Web medium – Web design process – Evaluating process – Site types and architectures – Navigation theory – Basic navigation practices – Search – Site maps.

UNIT II ELEMENTS OF PAGE DESIGN 9

Browser compatible design issues - Pages and Layout – Templates – Text – Color – Images – Graphics and Multimedia - GUI Widgets and Forms – Web Design patterns

UNIT III SCRIPTING LANGUAGES 10

Client side scripting: XHTML – DHTML– JavaScript– XML Server side scripting: Perl – PHP – ASP/JSP Designing a Simple web application

UNIT IV PRE-PRODUCTION MANAGEMENT 8

Principles of Project Management – Web Project Method – Project Road Map – Project Clarification – Solution Definition – Project Specification – Content – Writing and Managing content.

UNIT V PRODUCTION, MAINTENANCE AND EVALUATION 9

Design and Construction – Testing, Launch and Handover – Maintenance – Review and Evaluation – Case Study.

TOTAL = 45

TEXT BOOKS:

1. Themas A. Powell, “The Complete Reference – Web Design”, Tata McGraw Hill, Third Edition, 2003.
2. Ashley Friedlein, “Web Project Management”, Morgan Kaufmann Publishers, 2001.
3. H. M. Deitel, P. J. Deitel, A. B. Goldberg, “Internet and World Wide Web – How to Program”, Third Edition, Pearson Education 2004.

REFERENCES:

1. Joel Sklar, “Principles of Web Design”, Thomson Learning, 2001.

2. **Van Duyne, Landay, and Hong** "The Design of Sites: Patterns for creating winning web sites", 2nd Edition, Prentice Hall, 2006.
3. Lynch, Horton and Rosenfeld, "Web Style Guide: Basic Design Principles for Creating Web Sites", 2nd Edition, Yale University Press, 2002.

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

CP9176 HUMAN RESOURCE MANAGEMENT

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UNIT I PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT 9

Evolution of human resource management – the importance of the human factor – objectives of human resource management – role of human resource manager – human resource policies – computer applications in human resource management.

UNIT II THE CONCEPT OF BEST FIT EMPLOYEE 9

Importance of human resource planning – forecasting human resource requirement – internal and external sources. Selection process-screening – tests - validation – interview - medical examination – recruitment introduction – importance – practices – socialization benefits.

UNIT III TRAINING AND EXECUTIVE DEVELOPMENT 9

Types of training, methods, purpose, benefits and resistance. Executive development programmes – common practices - benefits – self development – knowledge management.

UNIT IV SUSTAINING EMPLOYEE INTEREST 9

Compensation plan – reward – motivation – theories of motivation – career management – development, mentor – protégé relationships.

UNIT V PERFORMANCE EVALUATION AND CONTROL PROCESS 9

Method of performance evaluation – feedback – industry practices. Promotion, demotion, transfer and separation – implication of job change. The control process –

importance – methods – requirement of effective control systems grievances – causes – implications – redressal methods.

TOTAL = 45

TEXT BOOKS:

1. Decenzo and Robbins, Human Resource Management, Wilsey, 6th edition, 2001.
2. Biswajeet Pattanayak, Human Resource Management, Prentice Hall of India,2001.

REFERENCES:

1. Human Resource Management, Eugence Mckenna and Nic Beach, Pearson Education Limited, 2002.
2. Dessler Human Resource Management, Pearson Education Limited, 2002.
3. Mamoria C.B. and Mamoria S.Personnel Management, Himalaya Publishing Company, 1997.
4. Wayne Cascio, Managing Human Resource, McGraw Hill, 1998.
5. Ivancevich, Human Resource Management, McGraw Hill 2002.