SYLLABUS OF MASTER OF TECHNOLOGY IN IT
(COURSEWARE ENGINEERING)

First Semester

Category: Departmental / Specialization Basket

PAPER-I

PG / CRSE-MMD/ T/ 111A - Computer Graphics

(Why detailing of surface, Surface Polygon, Texture Mapping, Bump Mapping)); Transparency (Non-refractive transparency, Refractive transparency)]

Transformation – Introduction to Transformation; Types of Transformation [Basic Transformation (Translation, Scaling, Rotation), Other Transformations (Reflection, Shear, Affine, Raster methods for transformation), Matrix Representations, Homogeneous Coordinate Transformation, Composite Transformation, Transformation between Coordinate Systems]

Viewing – Viewing Pipeline [Window, View Port]; Viewing Coordinate Systems [Local Coordinate System, World Coordinate System, Device Coordinate System, Normalised Device Coordinate System, Modeling Transformation]; Window to View Port Transformation; Clipping Algorithm [Point Clipping, Line Clipping (Cohen-Sutherland Line Clipping), Area Clipping (Polygons)]

Animation – What is Animation?; Historical Background; Uses of Animation; Key frames & Tweening; Computer Based Animation; Cell Animation; Path Animation; Transformation [Types of Transformation (Translation, Rotation, Scaling), Co-ordinate System]; 2D Versus 3D Animation; Animation Techniques [Onion Skinning, Motion Cycling, Masking]; Special Effects [Color Cycling, Morphing, Warping]; Animation File Formats [Animated GIF, QuickTime, AVI, FLIC]; Tools for 2D Animation [Authoring tools for animation, Popular stand-alone animation software]; Introduction to Flash5

PAPER-II

PG / CRSE-MMD/ T/ 112A - Multimedia Technology


References


PAPER-III

PG / CRSE-MMD/ T/ 113A - Computer Network & Web Technology
Introduction to Digital Communication [Overview of Computer Network, NIC, communication media, MAC address, TCP/IP (IP classes, IPv4 and IPv6, layered architecture - ISO model), Overview of common protocols: ARP, ICMP, Routing : Static, Dynamic; Domain Name Servers, DHCP; Access Methodology (CSMA/CD, Token Ring)]; Introduction to Internet [Overview : What is the Internet, Evolution of the Internet, How Internet Works (Packet Switching), Services Offered on the Internet (Email: POP3, SMTP, IMAP, MIME; Network News, Telnet, FTP, IRC, Whiteboard, Archie, Gopher; World Wide Web), Overview : What is the World Wide Web, Evolution of the WWW, Client-Server Model of the Internet; Browsers, Web Servers, Proxy Servers, , Hypertext, HTML, URL, Home Page, Search Engines; Internet Access Methods : Dial-up connection, Leased Line connection, ISDN Internet Service Providers (ISP) : Connection through an ISP Server, Shell and PPP accounts]; Hypertext Transfer Protocol (HTTP) [Overview - HTTP Basics, elements, Client request, Server response; HTTP Headers; Session Management - Persistent connections, Cookies, streaming]; General concepts of web server [Web server Configuration & Administration; Virtual hosting]; Client side technologies [Hypertext Markup Language (HTML): Structure of HTML Document - Meta tags, Links, Text, Lists, Tables,
Inclusions (Objects, Images, and Multimedia contents), Forms, Frames, Image Maps; Style Sheets; JavaScript (Document Object Model, Object Reference - Objects, Methods and Properties, Event Handlers. Language constructs - Statements and Operators); Server side technologies [CGI, Server Side Scripting (Working Principles, Implicit objects, Session Handling, Database Connectivity, File Handling); Extensible Markup Language (XML) [Overview; Schemas-DTD (Document Type Definitions), XML Data, Namespaces, XSL, XSLT]; Extensible Hypertext Markup Language (XHTML)

Category: Inter-Disciplinary Basket

PAPER-IV

PG / CRSE-MMD/ T/ 114A - Multimedia Design Principles and Authoring

PAPER-V

PG / CRSE/ T/ 115A - Principles of Education Technology
Design [Broad levels of decision making with instruction designing (Course level, Lesson level, Instructional event level, Learning step level), The Control of Instruction, Prescriptive and Student Controlled Systems, IT Enabled Intelligent Systems)]; Knowledge and Skill [Comparison of Expositive & Experiential strategies, Tactics for the teaching of knowledge, Tactics selected for the implementation of a given strategy, Selecting strategies for teaching of skills, Tactics for teaching of skills, Tactics specific to the objectives sub-category, Tactics specific to the content and the students, Identifying critical sub-skills]; Organising Courseware [General Guidelines, Subject Classification, Pedagogical analysis (Aims Objectives, Main Benefits, Assumptions, Scope, Functions, Sources, Limitations, Evaluations, Management, Socio-Academic relevance]; Organising Course materials [Lecture notes, View graphs, Free run videos, Web based lecture notes, Interactive CBT]; Media planning [Verbal and Non-Verbal, Print and Non-print Materials]; Evaluation Design [Methods of Evaluation, Computer aided evaluation, Courseware organisation vis a vis evaluation]; Courseware Life Cycles [Courseware Inspection and QA, Courseware Evaluation and Impact Analysis, Effort Estimation and Costing]

PAPER-VI

PG / CRSE-MMD / T/ 116A - Human Computer Interaction

Category: Sessional Courses
SESSIONAL 1

PG / CRSE/ S / 111- Laboratory
Image Editing [Selection, Painting and Transformation tools, Layers, Channels, Masks, Anti-aliasing, Dithering, Filters]; Audio Editing [Normalization, Mixing, Cross-fading, Dynamics, Filters, Mono/stereo formats, Noise gate]; Video Editing [Importing clips, trimming clips, splitting clips, manipulating audio content, adding transitions, changing speed of a clip, changing opacity, applying special effects, superimposing an image, exporting a movie]

SESSIONAL 2

PG / CRSE/ S / 112- Seminar
Development of a piece of Content, Presentation

Second Semester

Category: Departmental / Specialization Basket

PAPER-VII

PG / CRSE-MMD/ T/ 127A - Object Oriented Programming

PAPER-VIII

PG / CRSE/ T/ 128A - Multimedia Communication in Mobile Environment
Wireless Access Protocol (WAP) and Wireless Markup Language (WML), Rudimentary ideas of modern telephone signaling --- the SS7 protocol, Short Message Service (SMS) and Multimedia Messaging Service (MMS), MMS details (MM1, MM2, MM4, etc, MMS authoring, MMS transport, etc.), Real-time Protocol and Real-time Control Protocol (RTP and RTCP), Streaming in 3rd generation mobile architecture, Experimenting with the (open source) mpeg suite and Live RTP stack, Voice and Video over IP --- Videophones (together, Media over IP), Session Initiation Protocol (SIP) and its use in Media Over IP. Skype as a case study, Multimedia Application Development for handheld devices, J2ME, J2ME classes and profiles, Midlet, Command Listener, Displayable, Forms, etc., The Model-view-Control paradigm for application development, J2ME Canvas and Game Canvas, Multimedia and game application development on J2ME
PAPER-IX

PG / CRSE/ T/ 129A - Educational Management & Quality Assurance
Introduction [Elements of Organisational theory, Types of Educational Organisation, System Concepts and Educational Organisation, Defining Educational Objectives and Goals, Individual and Organisational Goals - conflict resolutions, Measuring Quality and Productivity in Educational Organisation, Accreditation, Costing of Educational Services, Limitations of Organisation theories in educational perspective, Quality Circle and participatory Quality Improvement, Total Quality Management - basic principles]; IT Enabled Distance Education [Evolution of Distance Education, Dominant Modes of Distance Education, The Basic Infrastructure for Digital Distance Education, Course Re-engineering for Digital Distance Education, Copyright Issues, Ownership of Course Material, Educational Fair Use Guidelines for Distance Learning, Accreditation and Quality Assurance for Distance Education, Managing a Distance Education Program, Economics of Distance Learning, Staffing a Distance Education Program, Help Line (For Students, For Faculty)]

Category: Inter-Disciplinary Basket

PAPER-X

PG / CRSE-MMD/ T/ 1210A - Management of Software System Development

Category: Sessional Courses

SESSIONAL 1

PG / CRSE/ S / 121- Term paper leading to thesis
Design of a half an hour standalone CBT on a subject of choice.

SESSIONAL 2
PG / CRSE/ S / 122- Seminar

Third and Fourth Semester

Category: Sessional Courses

SESSIONAL 1

PG / CRSE/ TH / 21- Thesis Work

SESSIONAL 2

PG / CRSE/ VV/ 22- Viva-Voce