

College of IT and Management Education

Lesson Plan

Sub : Computer Graphics and Multi Media (MCC-402)

Branch : MCA

Semester :4th Semester MCA(Jan-June,2017)

Name of the Faculty : Susanta Kumar Behera

Total Credit Point: 3

Total Number of Classes: 40

Sl. No.	TOPIC PLANNED	SESSION
MODULE-I		17 Hours
1	Survey of Computer graphics, Overview of Graphics System	1
2	Video Display Devices, Raster-Scan Systems,	1
3	Input Devices, Hard-Copy Devices, Graphics Software,	1
4	Introduction to OpenGL Graphics Output Primitives: Point and Lines	1
5	Simple DDA line –drawing algorithm	1
6	Bresenham’s Line drawing	1
7	Midpoint Circle Drawing Algorithm ,Midpoint Ellipse generation	1
8	Filled-Area Primitives. Attributes of Graphics Primitives: Point, line, curve attributes,	1
9	Fill area attributes, fill methods for areas with irregular boundaries	1
10	Anti-aliasing, Geometric Transformations (both 2-D & 3-D): Basic Geometric Transformations in Matrix form	1
11	Homogeneous Representation and Composite Transformation	1
12	Reflection, shear, Transformation between coordinate systems, Affine Transformations	1
13	Two Dimensional Viewing: Viewing pipeline, Clipping Window, Normalization & Viewport	1
14	coordinate Transformations, Clipping Algorithms: Point clipping, Line clipping	1
15	Sutherland Hodgmann Polygon clipping.	1
16	Projection Transformations Orthogonal, Oblique parallel	1
17	Perspective projection	1
MODULE-II		14
18	Three Dimensional Object Representations: Curved Surfaces, Quadratic Surfaces	1
19	Spline Representations, Bezier Spline Curves and Surfaces	1
20	B-Spline Curves and Surfaces	1
21	Octrees, BSP Trees	1
22	Fractal Geometry Methods, Shape Grammars.	1
23	Back Face Detection Algorithms,	1

24	Depth-Buffer method, A-Buffer Method,	1
25	Scan line and Depth Sorting, Area subdivision Method,	1
26	Ray Casting Method.	1
27	Illumination Models: Basic Illumination Models,	1
28	Displaying light Intensities, Halftone Patterns and Dithering techniques	
29	Polygon-Rendering Methods (Gouroud Shading, Phong Shading)	1
30	Ray Tracing Methods (Basic Ray-Tracing Algorithm, Ray-Surface Intersection Calculations).	1
31	Computer Animation, Hierarchical Modeling (introductory idea only).	1
MODULE-III		9
32	Multimedia & Hypermedia, WWW, Multimedia software tools, Multimedia Authoring and Tools, Graphics and Image Data Representation	1
33	Color Models in images & video	1
34	Fundamental Concepts in Video. Basics of digital Audio.	1
35	Basics of Information Theory, Run length coding, Variable length coding	1
36	Lossy Compression Algorithms (distortion measure, quantization, Discrete Cosine transform)	1
37	Basic Image Compression standard-JPEG	1
38	JPEG	1
39	Basic Video Compression standard-MPEG (MPEG-1&2)	1
40	MPEG	1

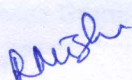
Text Books:


1. Donald Hearn & M. Pauline Baker, "Computer Graphics with OpenGL", Third Edition, 2004, Pearson Education, Inc. New Delhi.
2. Ze-Nian Li and Mark S. Drew, "Fundamentals of Multimedia", First Edition, 2004, PHI Learning Pvt. Ltd., New Delhi.

Reference Books:

1. Jennifer Burg, "The Science of Digital Media", First Edition, 2009, Pearson Education Inc., 2. Francis S. Hill & Stephen M. Kelly, "Computer Graphics using OpenGL", Third Edition, 2007, PHI Learning Pvt. Ltd., New Delhi.
3. Zhigang Xiang, Roy A. Plastrock, "Computer Graphics", Second Edition, 2007, McGraw-Hill Education (India), New Delhi.
4. Leen Ammeral, Kang Zhang, "Computer Graphics for Java Programmers", Second Edition, 2007, Wiley India Pvt. Ltd., New Delhi.
5. Edward A. Angel, "Interactive Computer Graphics: A Top-Down Approach Using OpenGL", Fifth Edition, 2009, Pearson Education Inc., New Delhi.


Faculty


Course Coordinator


Principal