MCA 402 Computer Graphics and Multimedia

Module 1 (10 Hours)

An Introduction Graphics System : Computer Graphics and Its Types, Application of computer graphics, Graphics Systems : Video Display Devices, Raster Scan Systems, Random Scan Systems, Graphics Monitors and Work Stations, Input Devices, Hard Copy Devices, Graphics Software.

Module 2 (10 Hours)

Output Primitives and Attributes of Output Primitives : Output Primitive Points and Lines, Line Drawing Algorithms, Circle Generating Algorithms, Scan-Line Polygon Fill Algorithm, Inside-Outside tests, Boundary-Fill Algorithm, Flood Fill Algorithm, Cell Array, Character Generation, Attributes of Output Primitives : Line Attributes, Color and Grayscale Levels, Area fill Attributes, Character Attributes, Bundled Attributes, Anti-aliasing.

Module 3 (10 Hours)

Two-dimensional Geometric Transformations : Basic Transformations, Matrix Representation and Homogeneous Coordinates, Composite Transformations, Reflection and Shearing. Two-Dimension Viewing : The viewing Pipeline, Window to view port coordinate transformation, Clipping Operations, Point Clipping, Line Clipping, Polygon Clipping, Text Clipping, Exterior Clipping Three-Dimensional Concepts : Three Dimensional Display Methods, 3D Transformations, Parallel Projection and Perspective Projection.

Module 4 (10 Hours)

Multimedia : Introduction to Multimedia : Classification of Multimedia, Multimedia Software, Components of Multimedia – Audio : Analog to Digital conversion, sound card fundamentals, Audio play backing and recording Video, Text : Hypertext, Hyper media and Hyper Graphics, Graphics and Animation : Classification of Animation. Authoring Process and Tools. Case Study: graphics software MatLab, Use of MatLab in graphics application, Features of MatLab, Generalize application by using MatLab.

Module 5 (6 Hours) (as per choice of faculty)

Portion covered can be tested through Internal evaluation only not to be included in University examination

Text Books:

1. Donald Hearn & M. Pauline Baker, “Computer Graphics with OpenGL”, Third Edition, 2004, Pearson Education, Inc. New Delhi.

2. Ze-NianLi and Mark S. Drew, “Fundamentals of Multimedia”, First Edition, 2004, PHI Learning Pvt. Ltd., New Delhi.

Reference Books:

1. Plastock : Theory & Problem of Computer Gaphics, Schaum Series.

2. Foley & Van Dam : Fundamentals of Interactive Computer Graphics, Addison-Wesley.

3. Newman : Principles of Interactive Computer Graphics, McGraw Hill.

4. Tosijasu, L.K. : Computer Graphics, Springer-Verleg.

5. S. Gokul : Multimedia Magic, BPB Publication.

6. Bufford : Multimedia Systems, Addison Wesley.

7. Jeffcoate : Multimedia in Practice, Prectice-Hall.

8. Any other book(s) covering the contents of the paper in more depth.

Note : Latest and additional good books may be suggested and added from time