

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.Sc (Computer Science)**  
**Semester: V**  
**Syllabus with Effect from: June-2013**

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| <b>Paper Code: US05CCSC06</b>                             | <b>Total Credit: 3</b> |
| <b>Title Of Paper: Computer Graphics &amp; Multimedia</b> |                        |

| Unit | Description in detail  | Weighting (%) |
|------|--|---------------|
| I    | <b>Introduction to Computer Graphics</b><br>A survey of major applications of Computer Graphics<br>Overview of different video display Devices: CRT, Raster scan, Color Monitors, DVST, Flat Panels<br>Input Devices: Keyboard, mouse, Trackball, Spaceball, Joystick, Data Glove, Digitizers, Image Scanner, Touch Panel, Light pen & Voice system,<br>Hardcopy Devices: Printers and Plotters<br>Graphics Software & coordinate representation, Graphics functions, Software Standards   | 25%           |
| II   | <b>Output Primitives and their attributes</b><br>Output Primitives: Points, Lines, Circles<br>Line Drawing Algorithms (without program): Digital Differential Analyzer (DDA) and Bresenham<br>Circle generating algorithm(without program): Midpoint Circle Algorithm<br>Filled area primitives<br>Inside – Outside tests: Odd even rule & Non-zero winding number rule<br>Boundary- fill algorithm (with procedure)<br>Flood-Fill Algorithm (with procedure), Character generation,<br>Attributes of output primitives  | 25%           |
| III  | <b>Two – dimensional Geometric Transformations, Viewing &amp; Clipping</b><br>2-D geometric Transformations : Translation, Rotation, Scaling, Reflection & Shear (with example)<br>Viewing Pipeline, Window-to-Viewport transformation<br>Point Clipping<br>Line clipping (without program)<br>Cohen Sutherland line clipping algorithm<br>Polygon Clipping(without program)<br>Sutherland Hodgeman polygon clipping algorithm<br>Text clipping and Exterior clipping<br>Logical classification of input devices<br>Input modes (request, sample & event mode – Definitions) | 25%           |
| IV   | <b>Introduction to Multimedia, Multimedia Text , Graphics and Animation</b><br>Multimedia: Definition, Various facets of Multimedia, Classification<br>Multimedia System Configuration, Varieties of multimedia software<br>Introduction Digital Media, Digital Audio & Sound card fundamentals<br>Sound card functionalities, Audio jacks, connections<br>Digital Audio playback & Audio editing & need<br>Multimedia Text: Designing Text for Multimedia, Hypermedia, Hypertext<br>Multimedia Graphics: Graphics in Multimedia Project, Source of image, Hypergraphics     | 25%           |



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|  | Multimedia Animation: Introduction & Classification<br>Two- dimensional animation & Three dimensional animation Technology<br>Names of animation software tools |  |
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**Basic Text & Reference Books:-**

- Computer Graphics by Donald Hearn & M. Pauline Baker, PHI, 1995
- Multimedia Magic. By S. Gokul, BPB Publications, 1998.

