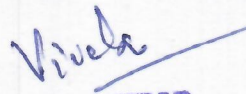


MCA- E206 Computer Graphics				
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Course objective:				
<ol style="list-style-type: none"> 1. To understand the basics of various inputs and output computer graphics hardware devices. 2. To know 2D raster graphics techniques, 3D modelling, geometric transformations, 3D viewing and rendering. 				
Course outcomes:				
<ol style="list-style-type: none"> 1. Ability to understand the various computer graphics hardware and display technologies. 2. Ability to implement and apply various 2D and 3D objects transformation techniques 				
<p>Introduction to Computer Graphics: Video display devices, Raster- scan systems, Random- scan systems, Graphics monitors and workstations, Input devices, hardcopy devices, Computer graphics software. Point plotting techniques: Points and lines, line-drawing algorithm, Circle generating algorithms, Ellipse-generating algorithms.</p>				
<p>Two-Dimensional Transformations: Transformations of Points, Transformations of Straight Lines, Mid-Point Transformations, Transformations of Parallel Lines, Transformations of Intersecting Lines, Rotation, Reflection, Scaling, Projection, Combined Transformation, Transformation of the unit square.</p>				
<p>Three-Dimensional Transformation: Introduction to Three- Dimensional Transformation, 3-D Scaling, Shearing, Rotation, Reflection, Projection and Translation, Multiple Transformation, Rotation about an Axis parallel to a Coordinate Axis, rotation about an Arbitrary Axis in Space, Reflection through an Arbitrary Plane.</p>				
<p>Two-Dimensional Viewing: viewing pipeline, viewing coordinate reference frame, window- to- viewport coordinate transformation, Clipping operations, point clipping, Cohen- Sutherland line clipping, Sutherland- Hodgeman polygon clipping, Curve clipping, Text clipping, Exterior clipping.</p>				
<p>Visible Surface Detection Methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP tree methods, area sub-division and octree methods.</p>				
<p>Computer Animation: Design of animation sequences, General computer- animation functions, Raster animations, Computer- animation languages, Key- frame systems morphing simulating accelerations, Motion specifications.</p>				
Recommended Books:				
<ol style="list-style-type: none"> 1. Hearn D., Baker P.M., Computer Graphics, Prentice-Hall of India 2. Rogers and Adams, Mathematical Elements of Computer Graphics, McGraw Hill Book Co 3. Newman, W., Sproul, R.F., "Principles of Interactive Computer Graphics", McGraw-Hill 				


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