Course Type	Course Code	Name of Course	L	т	Ρ	Credit
DE	MCD401	Computer Graphics	3	0	0	3

## **Course Objective**

**Objective**: The objective of the course is to present an introduction to Computer Graphics, with an emphasis on how to develop realistic graphics model including games

## Learning Outcomes

Upon successful completion of this course, students will:

- Upon successful completion of this course, students will:
- Have a broad understanding of Computer Graphics
- Programming of Graphics Models

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome	
1	Graphics hardware and display devices;	2	Under standing graphics hardware and display devices;	
2	Graphics primitives- drawing lines and curves;	5	Learn graphics primitives- drawing algorithms	
3	2d and 3d transformations; segments and their applications;	6	Help to understand 2D/3D transformations and geometric projections	
4	Generating curves, surfaces and volumes in 3d, wire-frame models, Bezier and spline curves and surfaces;	6	This will help design various objects using Cubic Spline, Bezier and spline curves and surfaces;	
5	Geometric modeling- elementary geometric algorithms for polygons, boundary representations, constructive solid geometry, spatial data structures;	6	To understand elementary modeling, constructive solid geometry and spatial data structures;	
6	Hidden surface and line elimination;	6	To understand how to remove hidden surfaces	

7	Rendering- shading, light models, realistic image synthesis techniques,	5	This will help student in designing more realistic models using shading and liting
8	Textures and image based rendering; video games and computer animation.	6	To understand textures based rendering, animation and how to develop a video game using OpenGL

## **Text Books:**

- Procedural Elements for Computer Graphics, by David Rogers, Tata McGraw-Hill, 2012
- Mathematical Elements for Computer Graphics, by David F. Rogers and J. Alam Adams, 2<sup>nd</sup> Ed. Tata McGraw-Hill, 2011

## **Reference Books:**

- Computer Graphics Through OpenGL: From Theory to experiments, 2<sup>nd</sup> Ed. By Sumanta Guha, CRC Press, Taylor & Francis Group, 2014
- 2. Computer Graphics with OpenGL, by Donald D. Hearn, M. Pauline Baker and Warren Carithers, Pearson 2011