

## ACADEMIC PLAN FOR SEMESTER-III (for 2016-17)

**SUBJECT: Computer Graphics & Multimedia**

**Subject Code: ETCS-211**

**Total Lecture Available: 36**

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S.No.	TOPICS TO BE COVERED	Total No. of Lecture	Tutorial
<b>FIRST TERM</b>			
<b>UNIT - I</b>			
1	Introduction, Applications areas, Components of Interactive Computer Graphics System. Overview of Input devices, Output devices	2	2
2	Raster scan CRT displays; random scan CRT displays.	2	
3	DDA and Bresenham's Line Drawing Algorithms	2	
4	Bresenham's and Mid-Point Circle Drawing Algorithms.	2	
5	Homogeneous Coordinate System for 2D and 3D, Various 2D, 3D Transformations (Translation, Scaling, Rotation, Shear).	3	
<b>UNIT - II</b>			
7	Clipping Algorithms, Sutherland-Cohen line Clipping Algorithm	1	2
8	Bezier Curves, B-Spline Curves.	1	
9	Parallel Projection, Perspective Projection,	3	
10	Illumination Model for diffused Reflection, Ambient light, Specular Reflection Model, Reflection Vector.	2	
<b>SECOND TERM</b>			
<b>UNIT - III</b>			
11	Shading Models, Flat shading, Gourard Shading, Phong Model.	2	2
12	Visible surface detection, Back Face Detection, Depth Buffer (Z-Buffer, A-Buffer) Method.	3	
13	Overview of multimedia: Classification, basic concepts of sound/audio MIDI: devices, messages, software, Authoring tools,	3	
14	Video and Animation: controlling animation, display and transmission of animation	2	
<b>UNIT - IV</b>			
15	Data Compression: storage space, coding requirements, Basic compression techniques: run length code, Huffman code, Lempel-Ziv	3	2
16	JPEG: Image preparation, Lossy sequential DCT, expanded lossy DCT, Lossless mode, Hierarchical mode. MPEG,	3	
17	Media synchronization, Media Integration, Production Standards.	2	

### Text Books:

- [T1] Donald Hearn and M.Pauline Baker, "Computer Graphics C version", Second Edition, Pearson Education.  
 [T2] Ralf Steinmetz & Klara Nahrstedt, "Multimedia Computing Communication & Applications", Pearson Education.

### Reference Books:

- [R1] C, Foley, VanDam, Feiner and Hughes, "Computer Graphics Principles & practice", 2nd Edition  
 [R2] R. Plastock and G. Kalley, Schaum's Series, "Theory and Problems of Computer Graphics", McGraw Hill, 2nd edition.  
 [R3] Fred Halsall, "Multimedia Communications Applications, Networks, Protocols & Standards", Pearson Education.  
 [R4] David F. Rogers, "Procedural elements for computer graphics", McGraw- Hill.