



TCET/FRM/IP-08/10

Revision: B

**Semester Plan**

**(Practical / Tutorials / Assignment)**

Semester: **V**

Course: **B.E.(IT)**

Batches: **LAB 213 A1,A3**

Subject: **Computer Graphics and Virtual Reality** Class: **T.E(IT) A**

Batch Size: **20**

Laboratory faculty in charge: Mr. Sandip Bankar

Lab. Assistant /Attendant: Mr. Vinod Mourya

Sr. No.	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Planned Date	Completion Date	Remarks
		A1 A3	A1 A3	
1	To draw different graphics objects / graphics primitives using basic graphics commands.	26/07/2017 27/07/2017		
2	To implement Digital Differential Analyzer line drawing algorithm and draw house using same algorithm.	26/07/2017 27/07/2017		
3	To implement Bresenham's line drawing algorithm and draw any closed shape using same algorithm.	2/8/2017 3/8/2017		
<b>Design/ Development Experiments:</b>				
4	To implement midpoint circle drawing algorithm and draw Olympic symbol, concentric circle using same algorithm.	2/8/2017 3/8/2017		
5	To Implement Area Filling algorithm using 4 connected & 8 connected approach.	9/8/2017 10/8/2017		
6	To implement Generation of 2D (Bezier) curves and fractals.	16/8/2017 24/8/2017		
7	To implement 2-D Transformation on any polygon.	30/8/2017 31/8/2017		
8	To implement the line clipping algorithm (Cohen Sutherland and Liang Barsky Line clipping algorithm) and consider line in all three possible cases.	6/9/2017 7/9/2017		



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(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai\*)  
(Accredited Programmes by National Board of Accreditation, New Delhi\*\*\*)

\*Permanent Affiliated UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology (w.e.f. A.Y.2015-16 onwards)

\*\*1st time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology

\*\*\*2nd time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology • Electronics Engineering (3 years w.e.f.01-07-2016)

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9	To implement polygon clipping algorithm. Sutherland Hodgeman Polygon clipping algorithm and Weiler Atherton Polygon clipping algorithm.	13/9/2017 14/9/2017		
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**Group Learning Activity:**

10	Case Study on: Case study of VRML to create & implement models in Virtual Reality.	4/10/2017 5/10/2017		
11	Project: 1. To represent a 3D object using polygon surfaces and performs 3-D transformation 2. To implement Computer animation	20/9/2017 21/9/2017		
12	<b>IEEE Transaction:</b> Towards Pervasive Augmented Reality : context awareness in Augmented Reality	16-8-17		

**Bridge courses Objective:** Bridging of gaps with respect to prerequisites and industry skills or to carryout research in that particular field. ( 30 Hrs / Semester / student)

S. No.	Bridge courses/Technology	Duration (Week/hrs)	Modes of Learning	Recommended Sources
1.	<b>Prerequisite course:</b> <b>Matrix calculations in maths</b> <b>Programming using C++ or Java</b>	2 Weeks / 3 Hrs	Self-Learning/ Revision	<ul style="list-style-type: none"> <li><a href="http://www.tutswing.com/cplusplus-home">http://www.tutswing.com/cplusplus-home</a></li> </ul>
2	<b>Advanced course:</b> <b>Multimedia Systems, Gaming, Animation</b>	06 Weeks / 2 Hrs	Technology Based learning	<ul style="list-style-type: none"> <li><a href="https://ocw.mit.edu/courses/comparative-media-studies-writing/cms-608-game-design-fall-2010/study-materials/">https://ocw.mit.edu/courses/comparative-media-studies-writing/cms-608-game-design-fall-2010/study-materials/</a></li> <li><a href="https://ocw.mit.edu/courses/comparative-media-studies-writing/cms-608-game-design-fall-2010/study-materials/">https://ocw.mit.edu/courses/comparative-media-studies-writing/cms-608-game-design-fall-2010/study-materials/</a></li> <li><a href="https://www.university.youth4work.com/AA_G_Academy-of_Animation-and-Gaming/study">https://www.university.youth4work.com/AA_G_Academy-of_Animation-and-Gaming/study</a></li> </ul>



1. **Mini /Minor Projects Objective:** To get hands on experience to execute projects with respect to student choice in the following areas. **(30 Hrs / Semester / Student).**  
**(Total 120 Hrs)**

The areas are :

1. Research    2. Core    3. Interdisciplinary    4. Application

Minor project : As per University Scheme

Sr. No	Project Title/Group Size		Class		Type / Project Hours	Modes of Learning	Reference	
07	1. This OpenGL computer graphic project involves simulation of a racecar. 2. Create a STEAM ENGINE model. The Engine is made up of a Piston, Engine Pole, Cylinder Head, Flywheel, Crank Bell and a Crank using OpenGL.  <b>Group Size- 3 Students Per Group</b>		TE IT A		2-3	Minor	<b>Technology Based Learning</b> <ul style="list-style-type: none"> <li><a href="https://www.opengl.org/">https://www.opengl.org/</a></li> <li><a href="https://learnopengl.com/">https://learnopengl.com/</a></li> <li><a href="http://www.videotutorialsrock.com/">www.videotutorialsrock.com/</a></li> <li><a href="https://www.vrs.org.uk/virtual-reality/what-is-virtual-reality.html">https://www.vrs.org.uk/virtual-reality/what-is-virtual-reality.html</a></li> <li><a href="http://whatis.techtarget.com/Topics/DataCenter/Virtualization">whatis.techtarget.com /Topics/Data Center /Virtualization</a></li> <li><a href="http://cg.cs.uni-bonn.de/en/projects">http://cg.cs.uni-bonn.de/en/projects</a></li> </ul>	
No. of Prac.	Planned	Completed	No. of Assign.	Planned	Completed	No. of Tutorial	Planned	Completed
	<b>Basic Exp: 03</b> <b>Design Base Exp: 06</b> <b>Group Learning: 02</b> <b>Bridge Course: 02</b> <b>Minor Project: 02</b>			03			-----	-----
DOSLNE:				DOSLE (engaged in some other dates):				



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Group activities are required to be added with the practical related to course to enhance the learning activity of the student in the course. Group activity includes: Group presentation, new experiment design, mini projects etc.

**Note:**

1. The practical plan date and completion date shall be in compliance. For any non-compliance reason(s) required to be stated in remark column.
2. Learning objective and outcome shall be clearly stated with each of experiments/ tutorials/ assignments and are required to be mapped at the end of the semester.
3. Entry for DOSLE (engaged on some other date) shall be done with proper mapping to DOSLNE.

sd/-

**Mrs. Purvi Sankhe**  
Name & Signature of Faculty

Date: 14/07/17

sd/-

**Dr. Rajesh Bansode**  
Signature of HOD

Date:14/07/17

sd/-

**Dr. R. R. Sedamkar**  
Signature of Principal/ Dean (Academics)

Date:14/07/17