Semester - I/II					
COMPUTER AIDED ENGINEERING GRAPHICS (Common for all Programs) (Theory & Practice)					
Course Code	**:**	**ME112GL/ME122GL**	**CIE**	**:**	50 Marks
Credits: L:T:P	**:**	1:0:2	**SEE**	**:**	50 Marks
Total Hours	**:**	15(T) + 60 (P)	**SEE Duration**	**:**	3 Hours

Unit – I	**12 Hrs**
Introduction: Significance of engineering graphics, BIS conventions, drawing sheets, drawing scales, dimensioning, line conventions, material conventions. Symbolic representation of fasteners - bolts and nuts, riveted, welded, brazed and soldered joints, bars and profile sections, electrical & electronic elements and piping. **Use of Simple CAD tools:** Overview of CAD software [Menu bar, tabs -sketch, modify, dimension, annotation and commands]. **Orthographic Projections:** Principles of orthographic projections - quadrant systems, projection of points (All quadrants); Projection of lines (first angle projection); Projection of planes - inclined to HP and VP (first angle projection).	
Unit – II	**12 Hrs**
Projection of Solids: Prisms, pyramids, cylinder & cone with axis inclined to HP and VP (first angle projection). (Computer Drafting)	
Unit – III	**18 Hrs**
Isometric projection: Isometric scale, Isometric Projection of regular solids and combination of two simple solids (Computer Drafting). **3D modelling of components:** Conversion of isometric view to orthographic views and sectional views. (Computer Drafting)	
Unit – IV	**15 Hrs**
Development of Lateral Surfaces: Introduction to section planes, methods of development - parallel line method and radial line method – prism and cylinder (truncated), pyramid and cone (frustum and truncated) (Computer Drafting).	
Unit – V	**18 Hrs**
Engineering components: Assembly of Hexagonal bolt with nut (with washer)-3D Riveted joint: - butt joint with two covering plate (chain riveting): 3D Union joint, butt muff coupling, socket and spigot joint: 3D Basic building drawing (Plan and Elevation): 2D Electrical wiring and lighting drawing: 2D Electronic PCB drawings: 2D	

Course Outcomes: After completing the course, the students will be able to	
CO1	Understand the convention and methods of engineering drawing
CO2	Enhance their visualization skills to develop new products
CO3	Elucidate the principles of multi-view drawings and pictorial drawings
CO4	Apply the knowledge of engineering graphics to develop respective (simple) engineering assembly

Reference Books	
1	Textbook of Engineering Graphics by K R Gopalakrishna, Sudhir Gopalakrishna, Subhash Publishers, 40th Edition, 2018; ISBN 978-9383214204
2	SOLIDWORKS 2020 for Designers by Sham Tickoo Purdue University, CADCIM Technologies, 18th Edition, 2019; ISBN: 978-1640570849
3	Machine drawing by N. D. Bhatt, V. M. Panchal, Charotar Publishing House, 50th Edition, 2016; ISBN:

	978-9385039232
4	NPTEL :: Mechanical Engineering - Engineering Drawing

RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)	
ASSESSMENT AND EVALUATION PATTERN Theory & quizzes questions are to be framed using Bloom's Taxonomy Levels - Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating	**MARKS**
WEIGHTAGE	**CIE (50%)**
Practice session	
Manual Drawing: Practice session	**10**
Computer Drafting: Practice Session	**15**
A. TESTS: Each test will be conducted for 50 Marks adding upto 100 marks. Final test marks will be reduced to 10	
Test – I for 50 Marks	**10**
Test – II for 50 Marks	
B. EXPERIENTIAL LEARNING: Experiential Learning comprises of the modelling and simulation of various engineering components.	**15**
TOTAL MARKS FOR THE COURSE (Lab Course)	**50**

RUBRIC FOR SEMESTER END EXAMINATION (THEORY)		
Q. NO.	**CONTENTS**	**MARKS**
PART A **(TWO questions to be answered out of THREE Questions)**		
Unit-I	One Question to be set from the chapters Points, Lines & Planes. Each question carrying 5 marks.	**10**
PART B **(TWO questions to be answered out of THREE Questions)**		
Unit-II	Question on Projection of Solids (15 marks)	**15**
Unit-III	Question on Isometric Projection (15 marks)	**15**
Unit-IV	Question on Development of Surfaces (15marks)	**15**
PART C **(ONE question to be answered out of FOUR Questions)**		
Unit-V	Question on Assembly of Hexagonal bolt and nut or Riveted Joint	**10**
	Question on Basic building drawing	**10**
	Question on Electrical wiring and lighting drawings	**10**
	Question on Electronic PCB drawings	**10**
	MAXIMUM MARKS FOR THE SEE THEORY	**50**