

<b>Course Number and Name</b>													
BME6L2 - CAD/CAM Laboratory													
<b>Credits and Contact Hours</b>													
2 & 45													
<b>Course Coordinator's Name</b>													
Mr.R.Karthikeyan													
<b>Text Books and References</b>													
Lab Manual													
<b>Course Description</b>													
This course will enable the student To gain knowledge about the basic fundamental of CAD and CAM													
<b>Prerequisites</b>							<b>Co-requisites</b>						
CAD /CAM/CIM							Nil						
required, elective, or selected elective (as per Table 5-1)													
Required													
<b>Course Outcomes (COs)</b>													
CO1	Understand the benefits of computer aided design												
CO2	Knowledge of CNC.												
CO3	Understand the computer aided manufacturing of machine elements.												
CO4	Students learn 2D modeling												
CO5	Students learn modeling 3d Drawings												
CO6	Students learn writing commands												
<b>Student Outcomes (SOs) from Criterion 3 covered by this Course</b>													
	COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
	CO1	H							M			L	
	CO2	H							M			L	
	CO3			H	H	H						L	
	CO4					M						L	L
	CO5					M							L
	CO6						M	M	M				L

## List of Topics Covered

**CAD** Introduction to Computer Aided Drawing

**2-D DRAWING** Orthographic Views, Isometric Views, 2D Sectional Views, Part Drawing, Assembly Drawing, Detailed Drawing. Dimensioning, Annotations, Symbols, Welding, Surface finish, Threads, Text, Bill of Materials. Exercise- Knuckle Joint, Gib and Jotter Joint, Screw Jack, Foot Step Bearing.

**3-D DRAWING** Part Modeling- Protrusion, Cut, Sweep, Draft and Loft- Modify/Edit-Pattern- Transformation, Boolean operation. Assembly- Creating Assembly from Parts, Modify/Edit- Pattern Conversion of 3D Solid Model to 2D Model. Surface Modeling- Tabulated, Revolve, Ruled and Edge Surfaces. Exercise- Piston, Connecting Rod, Knuckle Joint, Universal Joint, Couplings.

### **CAM LAB**

1. Manual Part programming for CNC machines Using standard G – Codes and M- codes. Simulation of Tool path – Machining Practices on Trainer type CNC Machines – Straight cut, Taper turning, Profile, Parting, Thread cutting.
2. CNC Milling Machine: Production of Various Contour shapes
3. Computer assisted part programming – APT programming Language – Part programming using APT and other NC programming Languages.
4. Introduction to Component Modeling
5. NC code generation using CAD / CAM software – Post processing for standard CNC controls like FANUC, SINUMERIC etc.,