

Course Code	18ME36A	Course Title	Computer Aided Machine Drawing	Semester	III
Credits	3	L – T – P –TL*	2 – 0 – 3 – 5	Teaching Hrs	42
Total Marks	100	CIE*	40	SEE*	60
*NOTE: L – Lecture; T – Tutorial; P – Practical; TL – Total; CIE – Continuous Internal Evaluation; SEE – Semester End Examination					
Course Learning Objectives: This course will enable students to;					Teaching Hr
<ul style="list-style-type: none"> • To understand drawing and develop capacity to represent any object with the help of Picture. • To Sketch orthographic drawing of simple machine parts and threads. • To Sketch orthographic drawing of different fasteners, keys and rivets. • To Sketch orthographic drawing of Mechanical Joints and Couplings. • To Develop solid modelling skills to produce assembly drawings of mechanical components. • To develop creative thinking for developing the product concepts. 					
Module-1 Part – A					
Sections Of Solids: Sections of Pyramids, Prisms, Cube, Tetrahedron, Cone and Cylinder resting only on their bases (No problems on axis inclinations, spheres and hollow solids). True shape of sections.					8
Orthographic Views: Conversion of pictorial views into orthographic projections of simple machine parts with and without section. (Bureau of Indian standards conventions are to be followed for the drawings), Line conventions.					
Module-2 Part – B					
Thread Forms: Thread terminology, sectional view of threads. ISO Metric (Internal & External), BSW (Internal & External), square and Acme threads, Buttress thread, Sellers thread, American Standard thread.					6
Fasteners: Hexagonal headed bolt and nut with washer (assembly), square headed bolt and nut with washer (assembly) simple assembly using stud bolts with nut and lock nut.					
Module-3					
Riveted Joints: Single and Double riveted lap joints, butt joints with single/double cover straps (chain and Zigzag, using snap head rivets).					6
Module-4					
Keys & Joints: Study of keys: Parallel key, Taper key, feather key, Gibhead key and Woodruff key. Joints: cotter joint (socket and spigot), knuckle joint (pin joint), Universal joint. Couplings: Protected type flanged coupling, pin (bush) type flexible coupling, Muff coupling.					6

Module-5 Part – C	16
<p>Assembly Drawings: Solids of Protrusion, Assembly drawing of following machine parts (3D parts to be created and assemble and then getting 2D drawing with required views, including part drawing).</p> <ol style="list-style-type: none"> 1. Screw Jack 2. Plummer Block (Pedestal Bearing) 3. Tailstock of a Lathe 4. Machine Vice 5. Tool head of a shaper 6. Rams Bottom safety Valve 	
<p>Course outcomes: By the end of the course student shall be able to CO1: Sketch detailed orthographic drawings of simple machine parts and threads CO2: Construct hexagonal, square headed bolts and nuts, parallel key, taper key, Gib head key, woodruff key, single and double riveted lap joint, butt joints with single/double cover straps CO3: Construct Cotter and Knuckle joint, Split Muff coupling, protected type flanged coupling. Pin type flexible coupling, Oldham's coupling and universal coupling. CO4: Create solid assembly models of screw jack, pedestal bearing, machine-vice, I.C. engine connecting rod, tailstock of lathe, rams bottom safety valve, feed check valve.</p>	
<p>Question paper pattern:</p> <ul style="list-style-type: none"> • The question paper will have ten full questions carrying equal marks. • Each full question will be for 20 marks. • There will be two full questions (with a maximum of four sub- questions) from each module. • Each full question will have sub- question covering all the topics under a module. <p>The students will have to answer five full questions, selecting one full question from each module.</p> <p>Scheme of Examination: ONE question from part -A: 20 Marks ONE question from part -B: 20 Marks ONE question from part -C: 60 Marks Total: 100 Marks (To be reduced to 60 marks)</p>	
<p>Textbooks:</p> <ol style="list-style-type: none"> 1. Machine Drawing by K. R. Gopalkrishna,; 2014, Publisher. Subhas Stores, ISBN: 4567142527 2. N.D. Bhat and V.M.Panchal, "Machine Drawing", Charotar Publishing House, 46th Edition, 2011, ISBN: 9789380358390 3. Tryambaka Murthy, "Machine Drawing", CBS Publications, 2nd Edition, 2008, ISBN: 9788123916590 <p>Reference Books:</p> <ol style="list-style-type: none"> 1. Machine Drawing by P.S.Gill, S.K.Kataria and Sons, Seventeenth Revised Edition, 2008. 2. Machine Drawing by N.D. Bhatt and V.M. Panchal, 48th edition (2013); Charotar Publishing House Pvt. Ltd., ISBN : 978-93-80358-69-7 	