SILVER OAK UNIVERSITY

College of Technology (01)

Diploma in Mechanical Engineering

Subject Name: Computer Aided Modeling and Drafting

Subject Code: 1010122220

Semester: 3rd

Prerequisite: Engineering Graphics

Objective: To develop the skills of generating various digital production drawings as required in the industry using various CAD software.

Teaching and Examination Scheme:

Teaching Scheme					Evaluation Scheme				Total Marks
					Theory		Practical		
L	T	P	Contact Hours	Credit	CIE (TH)	ESE (TH)	CIE (PR)	ESE (PR)	
0	0	4	4	2	-	-	40	60	100

Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	**DRAWING STANDARDS AND TOLERANCES** Basic knowledge of computer hardware, software and peripherals. Concepts of Engineering Drawing, BIS specifications, The selection of standard components like bolts, nuts, screws, keys etc. Limits, Fits, tolerancing of individual dimensions, Specification of Fits	8	15
2	**CAD PRACTICE** Introduction to CAD software, Commands of CAD software, Drawing, Editing, Dimensioning, Layering, Hatching, Block, Array, Detailing, Detailed drawing.	14	25
3	**GEOMETRIC MODELING AND ASSEMBLY** Sketcher, Datum planes, Protrusion, Holes, Part modelling, Extrusion, Revolve, Sweep, Loft, Blend, Fillet, Pattern, Chamfer, Round, Mirror, Section, Assembly of Mechanical Components: Flange Couplings; Oldham's Couplings; Knuckle joints; Gib & Cotter; Sleeve & Cotter joints; Universal Joint; Screw jack; machine vice; tailstock, chuck.	20	35
4	**PRODUCTION DRAWINGS** Production drawings (Flange Couplings, Oldham's Couplings, Knuckle joints, Gib & Cotter joints, Sleeve & Cotter joints, Universal Joint, Screw jack, machine vice, tailstock, chuck), Principles of geometric dimensioning & tolerancing, Bill of Materials.	14	25

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	To familiarize with Indian Standards on drawing practices and standard components	1
CO-2	To gain practical experience in handling 2D drafting and 3D modeling software systems.	2,3
CO-3	To prepare assembly drawings both manually and using standard CAD packages	2,3,4
CO-4	To understand and interpret drawings of machine components	4

Teaching & Learning Methodology:

1. Practical teaching-learning approach
2. Direct interaction
3. Kinesthetic learning
4. Flipped classroom
5. Personalized learning

List of Experiments/Tutorials:

1. Selection of standard components like bolts and nuts
2. Preparation of 2D drawings using CAD software
3. Generate 3D parts using CAD modeling software
4. Generate assembly of the mechanical components using CAD modeling software
5. Generating detailed production drawing parts and assembly of mechanical components
6. Generating Bill of Materials

Major Equipment and Software:

1. CAD Workstation
2. Autodesk AutoCAD Mechanical
3. SOLIDWORKS

Books Recommended:

1. N. D. Bhatt and V.M. Panchal, “Machine Drawing”, Charotar Publishers
2. Junnarkar, N.D., “Machine Drawing”, Pearson Education
3. N. Siddeshwar, P. Kanniah, V.V.S. Sastri, “Machine Drawing”, published by Tata Mc GrawHill
4. S. Trymbaka Murthy, “A Text Book of Computer Aided Machine Drawing”, CBS Publishers, New Delhi
5. K. L. Narayana,“Machine Drawing”, New Age International publishers
6. K. C. John, “Textbook of Machine Drawing”, PHI
7. P. S. Gill, “A Textbook of Machine Drawing”, S.K. Kataria & Sons
8. R. K. Dhawan, “A Textbook of Machine Drawing”, S. Chand