Government of Karnataka
Department of Technical Education
Board of Technical Examinations, Bengaluru

Course Title: Computer Aided Drawing Lab		Course Code: 15MC45P
Mode (L:T:P) : 0:2:4	Credits:3	Core/ Elective: Core
Type of Course Tutorials and Practical's		Total Contact Hours: 78
CIE- 25 Marks		SEE- 50 Marks

Prerequisites: Knowledge of Engineering drawing and Elements of Mechanical Engineering

Course Objectives: Understand and Apply the CAD software to prepare simple 2D/3D and Assembly drawings

Course Outcomes: At the end of the course, the students will be able to

1. Understand the commands for drafting
2. Draw 2D/3D drawings and an assembly drawing of simple machine parts

Course Outcome		Cognitive Level	Linked with PO	Teaching Hours
CO1	Understand the commands for drafting	*U*	1,2	12
CO2	Draw 2D/3D drawings and an assembly drawing of simple machine parts	*A*	1,2,3,4	66
		Total sessions		**78**

Legend: R; Remember, U: Understand A: Application

Mapping of Course Outcomes with Program Outcomes:

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Computer Aided Drawing Lab	**3**	**3**	**3**	**3**	-	-	-	-	-	-

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.
Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

Contents

1. Familiarization of CAD software tool
2. Prepare a 2D CAD drawing of projection of pentagonal prism resting with its edge or corner on HP and its axis inclined to VP
3. Prepare a 2D CAD drawing of projection of hexagonal pyramid resting with its edge or corner on HP and its axis inclined to VP
4. Prepare a 2D CAD drawing of projection of cylinder resting on its corner on HP and its axis inclined to VP
5. Prepare a 2D CAD drawing of projection of cone resting on its corner on HP and its axis inclined to VP
6. Prepare atleast four CAD drawing by converting orthographic to isometric views
7. Prepare atleast four CAD drawing by converting isometric to orthographic views
8. Prepare an assembly of screw jack, and draw its orthographic views
9. Prepare an assembly of flange coupling and draw its orthographic views
10. Prepare an assembly of Plummer block and draw its orthographic views
11. Prepare an assembly of machine vice and draw its orthographic views

78 Hours

Contents linked with CO and PO

Sl No	Contents	CO	PO
1	Familiarization of CAD software tool	1	1,2
2	Prepare a 2D CAD drawing of projection of pentagonal prism resting with its edge or corner on HP and its axis inclined to VP	2	1,2,3,4
3	Prepare a 2D CAD drawing of projection of hexagonal pyramid resting with its edge or corner on HP and its axis inclined to VP.	2	1,2,3,4
4	Prepare a 2D CAD drawing of projection of cylinder resting on its corner on HP and its axis inclined to VP	2	1,2,3,4
5	Prepare a 2D CAD drawing of projection of cone resting on its corner on HP and its axis inclined to VP	2	1,2,3,4
6	Prepare atleast four CAD drawing by converting orthographic to isometric views	2	1,2,3,4
7	Prepare atleast four CAD drawing by converting isometric to orthographic views.	2	1,2,3,4
8	Prepare an assembly of screw jack, and draw its orthographic views	2	1,2,3,4
9	Prepare an assembly of flange coupling and draw its orthographic views	2	1,2,3,4
10	Prepare an assembly of Plummer block and draw its orthographic views	2	1,2,3,4
11	Prepare an assembly of machine vice and draw its orthographic views	2	1,2,3,4

Student Activity

Activity No	Description of the Student Activity
1	Get a used or replaced fastener or any other machine element from a nearby garage or workshop and prepare a CAD drawing of that machine elements with dimensions.(Full or reduced or enlarge scale) and printout has be submitted

Note:

1. Group of max four students should do any one of the above activity or any other similar activity related to the course COs and get it approved from concerned Teacher and HOD.
2. No group should have activity repeated or similar
3. Teacher should ensure activities by group must cover all Cos
4. Teacher should asses every student by using suitable **Rubrics** approved by HOD

Rubrics

Dimension	Exemplary	Accomplished	Developing	Beginning	Roll No. of the Student				
	5/4	3	2	1	1	2	3	4	5
Organization	Information presented in logical, interesting sequence	Information in logical sequence	Difficult to follow presentation--student jumps around	Cannot understand presentation--no sequence of information	2				
Subject Knowledge	Demonstrates full knowledge by answering all class questions with explanations and elaborations	At ease with expected answers to questions but does not elaborate	Uncomfortable with information and is able to answer only rudimentary questions	Does not have a grasp of the information. Cannot answer questions about subject	3				
Graphics	Explain and reinforce screen text and presentation	Relate to text and presentation	Occasionally uses graphics that rarely support text and presentation	Uses superfluous graphics or no graphics	4				
Oral Presentation	Maintains eye contact and pronounces all terms precisely. All audience members can hear	Maintains eye contact most of the time and pronounces most words correctly. Most audience members can hear presentation	Occasionally uses eye contact, mostly reading presentation, and incorrectly pronounces terms. Audience members have difficulty hearing	Reads with no eye contact and incorrectly pronounces terms. Speaks too quietly	5				
Total Score=(2+3+4+5)=14/4=3.5=4									

Course Assessment Pattern

Particulars			Max Marks	Evidence	Course outcomes
Direct Assessment	**CIE**	Two tests (Average of Two tests)	10	Blue books	1 &2
		Practical record	10	Practical record	1 &2
		Student Activity	05	Student Activity Sheets	1 &2
	SEE	End of the course	50	Answer scripts at BTE	1 &2
Indirect Assessment	**Student Feedback on course**	Middle of the course		Feedback forms	1 &2
		End of the course		Feedback forms	1 &2

***CIE** – Continuous Internal Evaluation ***SEE** – Semester End Examination

Note:

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

Scheme of valuation for SEE

Sl. No.	Description of task	Marks
1	List and Explain any five CAD Commands	05
2	Solving a problem on projection of solids or conversion of isometric to orthographic views or conversion of orthographic views to isometric on answer sheet(Any one)	10
3	Execution of above using cad software	10
4	Execution of assembly drawing using CAD software (Any one)	25
	Total	**50**