

COMPUTER AIDED ENGINEERING DRAWING

Sub Code	: 10CED14 / 10CED24	IA Marks	: 25
Hrs/ Week	: 06 (Instruction 2 hr. + Sketching & Practice 4 hr.)	Exam Hours	: 03
Total Hrs.	: 84 (Instruction 28 hr. + Sketching & Practice 56 hr.)	Exam Marks	: 100

1. Introduction to Computer Aided Sketching

Introduction, Drawing Instruments and their uses, BIS conventions, Lettering, Dimensioning and free hand practicing.

Computer screen, layout of the software, standard tool bar/menus and description of most commonly used tool bars, navigational tools. Co-ordinate system and reference planes. Definitions of HP, VP, RPP & LPP. Creation of 2D/3D environment. Selection of drawing size and scale. Commands and creation of Lines, Co-ordinate points, axes, poly-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz. tangency, parallelism, inclination and perpendicularity. Dimensioning, line conventions, material conventions and lettering.

12 Hours

2. Orthographic Projections

Introduction, Definitions - Planes of projection, reference line and conventions employed, Projections of points in all the four quadrants, Projections of straight lines (located in First quadrant/first angle only), True and apparent lengths, True and apparent inclinations to reference planes (No application problems).

12 Hours

3. Orthographic Projections of Plane Surfaces (First Angle Projection Only)

Introduction, Definitions-projections of plane surfaces-triangle, square, rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only (No problems on punched plates and composite plates).

12 Hours

4. Projections of Solids

(First angle Projection only)

Introduction, Definitions - Projections of right regular tetrahedron, hexahedron (cube), prisms, pyramids, cylinders and cones in different positions (No problems on octahedrons and combination solid).

24 Hours

5. Sections And Development of Lateral Surfaces of Solids

Introduction, Section planes, Sections, Section views, Sectional views, Apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on HP. (No problems on sections of solids)

Development of lateral surfaces of above solids, their frustums and truncations. (No problems on lateral surfaces of trays, tetrahedrons, spheres and transition pieces).

12 Hours

6. Isometric Projection (Using Isometric Scale Only)

Introduction, Isometric scale, Isometric projection of simple plane figures, Isometric projection of tetrahedron, hexahedron(cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres and combination of solids (Maximum of three solids).

12 Hours

Text Books:

1. **Engineering Drawing** - N.D. Bhatt & V.M. Panchal, 48th edition, 2005-Charotar Publishing House, Gujarat.
2. **A Primer on Computer Aided Engineering Drawing-2006**, Published by VTU, Belgaum.

Reference Books:

1. **Computer Aided Engineering Drawing** - S. Trymbaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition- 2006.
2. **Engineering Graphics** - K.R. Gopalakrishna, 32nd edition, 2005-Subash Publishers Bangalore.
3. **Fundamentals of Engineering Drawing with an Introduction to Interactive Computer Graphics for Design and Production**- Luzadder Warren J., Duff John M., Eastern Economy Edition, 2005-Prentice-Hall of India Pvt. Ltd., New Delhi.
4. **Computer Aided Engineering drawing**- Prof. M. H. Annaiah, New Age International Publisher, New Delhi. 2009.

Conducting classes

Classes may be conducted in two slots/ week of 3 hours each (Instruction 1 hr. +Sketching & Practice 2 hr.)

Scheme of Evaluation for Internal Assessment (25 Marks)

1. 15 Marks for Class work (Sketching & Computer Aided Engineering drawing printouts in A4 size sheets).
2. 10 Marks for test in the same pattern as that of the main examination.(Better of the two Tests).

All the solutions must be valued on the spot by examining the sketches, display and the hard copies. All the sketches including the computer printouts must be submitted and they must be preserved for one year.

Scheme of Examination

1. Chapter 1 is only for practice and Internal Assessment and not for examination.
2. Separate Question paper must be set for each batch of students, jointly by the Internal & External examiners.
3. A maximum of **THREE** questions must be set as per the following pattern (*No mixing of questions from different Chapters*).

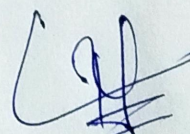
Q. No.	From Chapters	Marks Allotted
1	Chapter 2 or Chapter 3	30
2	Chapter 4	40
3	Chapter 5 or Chapter 6	30
Total		100

Scheme of Evaluation

Q. No.	Solutions & Sketching on graph book	Computer display & printout	Total Marks
1	10 Marks	20 Marks	30
2	15 Marks	25 Marks	40
3	15 Marks	15 Marks	30
Total	40 Marks	60 Marks	100

Students have to submit the computer printouts and the sketches drawn on the graph sheets at the end of the examination. Both Internal & External examiners have to jointly evaluate the solutions (sketches) and computer display & printouts of each student for 100 marks (40 marks for solutions & sketches + 60 marks for computer display and printouts) and submit the marks list along with the solution (sketches) on graph sheets & computer printouts in separate covers.

4. Each batch must consist of a minimum of 10 students and a maximum of 12 students.
5. Examination can be conducted in parallel batches, if necessary.



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