

III Year - II Semester

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COMPUTER AIDED ENGINEERING LABORATORY

Learning Objectives:

The objective of this course is:

1. To enhance the students knowledge and skills in engineering drawing.
2. To introduce computer aided drafting packages and commands for modeling and sketching.
3. To learn surface modeling techniques required designing and machining
4. To draw the geometric entities and create 2D and 3D wire frame models.
5. To learn various modelling techniques such as edit, zoom, cross hatching, pattern filling, rotation,etc.

outcomes:

Up on completion of the course, the student shall be able to :

1. Understand the paper –space environment thoroughly
2. Develop the components using 2D and 3D wire frame models through various editing commands.
3. Generate assembly of various components of compound solids.

PART-A: MANNUAL DRAFTING

UNIT-I

Objective: The knowledge of projections of solids is essential in 3D modelling and animation. The student will be able to draw projections of solids. The objective is to enhance the skills they already acquired in their earlier course in drawing of projection and sections of solids.

Projections Of Planes & Solids : Projections of Regular Solids inclined to both planes – Auxiliary Views. Sections and Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Auxiliary views.

UNIT-II

Objective: The knowledge of development of surfaces of solids is required in designing and manufacturing of the objects. Whenever two or more solids combine, a definite curve is seen at their intersection. The intersection of solids also plays an important role in designing and manufacturing. Theobjective is to impart this knowledge through this topic.

Development And Interpenetration Of Solids: Development of Surfaces of Right Regular Solids – Prisms, Cylinder, Pyramid Cone and their parts. Interpenetration of Right Regular Solids – Intersection of Cylinder Vs Cylinder, Cylinder Vs Prism, Cylinder Vs Cone.

UNIT-III

Objective: Isometric projections provide a pictorial view with a real appearance. Perspective views provides a realistic 3D View of an object. The objective is to make the students learn the methods of Iso and Perspective views.

Isometric Projections : Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts.

Transformation of Projections: Conversion of Isometric Views to Orthographic Views – Conventions.

Perspective Projections: Perspective View: Points, Lines, Plane Figures and Simple Solids, Vanishing Point Methods (General Method only).

PART- B COMPUTER AIDED DRAFTING

UNIT- IV

Introduction To Computer Aided Drafting: Generation of points, lines, curves, polygons, dimensioning. Types of modelling: object selection commands – edit, zoom, cross hatching, pattern filling, utility commands, 2D wire frame modelling, 3D wire frame modelling.

UNIT -V

Objective: By going through this topic the student will be able to understand the paper-space environment thoroughly.

View Points And View Ports: view point coordinates and view(s) displayed, examples to exercise different options like save, restore, delete, joint, single option.

UNIT -VI

Computer Aided Solid Modelling: Isometric projections, orthographic projections of isometric projections, Modelling of simple solids, Modelling of Machines & Machine Parts.

TEXT BOOKS :

- 1.Engineering Graphics, K.C. John, PHI Publications
- 2.Engineering drawing by N.D Bhatt, Charotar publications.

REFERENCES:

1. Mastering Auto CAD 2013 or modified version and Auto CAD LT 2013or modified version – George Omura, Sybex
2. Auto CAD 2013 or modified version fundamentals- Elisemoss, SDC Publ.
3. Engineering Drawing and Graphics using Auto Cad–T Jeyapoovan, vikas
4. Engineering Drawing + AutoCAD – K Venugopal, V. Prabhu Raja, New Age
5. Engineering Drawing – RK Dhawan, S Chand
6. Engineering Drawing – MB Shaw, BC Rana, Pearson
7. Engineering Drawing – KL Narayana, P Kannaiah, Scitech
8. Engineering Drawing – Agarwal and Agarwal, Mc Graw Hill
9. Engineering Graphics – PI Varghese, Mc Graw Hill
10. Text book of Engineering Drawing with auto-CAD, K.Venkata Reddy/B.S . Publications.

