

Course Title	Course Code	Credit Hours
Computer Aided Design	AE-213	0-1

Textbooks:

- Rathnam, K. A First Course in Engineering Drawing. Springer Singapore
- Cousins, Montague Fred., “Engineering Drawing from the Beginning”, the Commonwealth and International Library
- French, Thomas Ewing, and Charles J Vierck, “the Fundamentals of Engineering Drawing and Graphic Technology”, McGraw-Hill Companies
- Tickoo, Sham. “CATIA V5-6R2015 for Designers”, Cadcim Technologies,
- EASA Part-66 Category B1 Maintenance License Module 7, “Maintenance Practices”

Course Objectives:

This course aims to introduce students to Computer-Aided Drafting and Designing (CAD), focusing on fundamental concepts and practical applications of Engineering Drawing. It provides skills for effective and lifelong use in engineering design.

Course Outline:

- Introduction to computers and various commands. Software overview and its various environments (Assembly, Part, Drawing, Sheet Metal environments)
- Basic toolbars of Sketcher mode including View, User Selection Filter, Sketch tools, Visualization
- Lettering Convention and Applied Geometry Lab (to be done on A4 Graph Sheets)
- Creation of basic sketches including Profile, Rectangle, Oriented Rectangle, Parallelogram, Elongated hole, Cylindrical Elongated Hole, Keyhole Profile, Hexagon, Centered Rectangle, Centered Parallelogram, Circle, Three-Point Circle, Circle Using Coordinates
- Tri- tangent Circle, Three-Point Arc, Three-Point Arc Starting with Limits, Arc, Spline, Connect, Ellipse, Parabola by Focus, Hyperbola by Focus, Conic, Line, Infinite Line, Bi-Tangent Line, Bisecting Line, Line Normal to Curve, Axis, Point by Clicking, Points by Coordinates,

- Operating the Basic Profiles to get Desired 2-D Sketch, Introduction to Constraint Toolbar, and its Features including Constraints Defined in a Dialog Box
- Orthographic Views Lab
- Multi-section Solid, Project 3D Element, Intersect 3-D Element, Project 3D Silhouette Edges, Measure Between, and Measure, and Reference
- Dress up Features including Edge Fillet, Variable Radius Fillet, Chordal Fillet, Face-Face Fillet, Tri-tangent Fillet, Chamfer
- Introduction to Drawing Environment, Create Drawings and Views, Add Dimensions and Annotations, Geometry Creation and Modification, as well as Dress up Features

Introduction to Assembly Environment, Importing Existing Parts into Assembly Design, Positioning the Parts at their Respective Positions