

COMPUTER-AIDED ENGINEERING DRAWING – I

Aerospace Engineering Department

Lecturer: Dr. Ünal Hayta

Course Description

This course introduces the fundamental principles of engineering drawing and their application using AutoCAD. Students will learn to interpret and create standardized engineering drawings, progressing from basic geometric constructions to orthographic, isometric, sectional, auxiliary, working, and assembly drawings. Emphasis will be placed on understanding engineering drawing principles before implementing them in AutoCAD.

Course Objectives

- Understand fundamental engineering drawing principles and standards.
- Apply geometric construction and technical drawing conventions.
- Create and interpret orthographic and isometric views.
- Produce sectional and auxiliary views.
- Apply appropriate dimensioning and basic tolerancing principles.
- Organize engineering drawings using layers, line types, and line weights.
- Prepare professional engineering drawings using AutoCAD.
- Create basic working and assembly drawings.

Weekly Course Schedule

Week	Topic	Content
1	Welcome & Course Introduction	Course syllabus, objectives, assessment, software requirements, course workflow, and introduction to engineering drawing and CAD
2	Engineering Drawing Fundamentals & AutoCAD Basics	Drawing standards, units, scales, alphabet of lines, AutoCAD interface, coordinates, basic drawing and precision tools
3	Geometric Construction & Editing	Geometric constructions, symmetry, tangency, fillets and chamfers; AutoCAD drawing and modification commands
4	Drawing Standards, Layers & Properties	Line types, line weights, layers, object properties, drawing organization, and CAD standards
5	Orthographic Projection	Multiview projection, first- and third-angle projection, selection and alignment of views; creating orthographic drawings in AutoCAD
6	Dimensioning & Annotation	Dimensioning principles, linear/angular dimensions, radii, diameters, center marks, dimension styles, and AutoCAD annotation tools
7	MIDTERM EXAM I	
8	Isometric Drawing	Principles of pictorial and isometric projection; creating 2D isometric drawings in AutoCAD
9	Section Views	Full, half, offset, revolved, and removed sections; cutting planes, section lining, and creating section views in AutoCAD
10	Auxiliary Views & Inclined Surfaces	Auxiliary projection, true length and true shape; creating auxiliary views in AutoCAD
11	Tolerancing & Engineering Documentation	Basic dimensional tolerances, limits, fits, engineering notes, and tolerance annotation in AutoCAD
12	MIDTERM EXAM II	
13	Working Drawings & CAD Documentation	Drawing sheets, title blocks, layouts, viewports, drawing scales, plotting, and PDF output
14	Assembly Drawings	Blocks, balloons, parts lists, fasteners, assembly views, and preparation of complete engineering drawings
Final	FINAL EXAMINATION	

In-Class Practice & Bonus

The course will emphasize hands-on AutoCAD practice. Practical exercises will be conducted during every class session to reinforce the engineering drawing concepts introduced each week.

Students who fully participate in the in-class exercises throughout the semester will receive a 10-point bonus added to their overall course average.

Textbooks

1. Giesecke, F. E., et al. (2016). Technical Drawing with Engineering Graphics. Pearson.
2. Shih, R. H., & Jumper, L. K. AutoCAD 2024 Tutorial: First Level 2D Fundamentals. SDC Publications.

Examination Coverage

Midterm Exam I: Weeks 2–6. | Midterm Exam II: Weeks 8–11. | Final Examination: Cumulative, with emphasis on topics covered after Midterm Exam II.