AE 101 – COMPUTER AIDED ENGINEERING DRAWING – I

14-Week Course Schedule + Final Examination
Department of Aerospace Engineering

Course Description

This course introduces engineering drawing principles and their application through 2D AutoCAD drafting. Students will create geometric profiles, orthographic views, section views, and working and assembly drawings. Emphasis is placed on accurate construction, drawing organization, dimensioning, and basic tolerancing. All CAD drawing tasks are completed in 2D.

Course Objectives

- Understand fundamental engineering drawing principles and standards.
- Apply geometric construction and technical drawing conventions.
- Create and interpret orthographic views using first- and third-angle projection.
- Produce section views and interpret internal features.
- Apply appropriate dimensioning and basic tolerancing principles.
- Organize engineering drawings using layers, line types, and line weights.
- Prepare professional 2D 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	2D Geometric Construction & Editing I	Geometric relationships, symmetry, tangency, fillets and chamfers; basic AutoCAD drawing and modification commands
4	2D Geometric Construction & Editing II	Complex profiles, tangent arcs, slots, repeated features and efficient editing; integrated 2D drawing applications
5	Drawing Standards, Layers & Properties	Line types, line weights, layers, object properties, drawing organization, and CAD standards
6	Dimensioning & Annotation	Dimensioning principles, linear/angular dimensions, radii, diameters, center marks, dimension styles, and AutoCAD annotation tools
7	MIDTERM EXAM I	
8	Orthographic Projection	Multiview projection, first- and third-angle projection, view selection and alignment; creating 2D orthographic drawings
9	Section Views	Full, half, offset, revolved and removed sections; cutting planes, section lining, and creating section views in AutoCAD
10	Orthographic and Section View Applications	Integrated 2D multiview and sectional drawings; view alignment, hidden and center lines, hatching, and dimensioned practice
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	2D Assembly Drawings	Blocks, balloons, parts lists, fasteners, 2D assembly views, and preparation of complete engineering drawings
Final	FINAL EXAMINATION	

In-Class Practice & Bonus

Hands-on 2D AutoCAD exercises will be conducted during every class session. Instructor-provided drawing sheets will reinforce geometric construction, editing, orthographic projection, section views, and engineering documentation.

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.