



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development (WFD)

COURSE: EGR-1000 Engineering Graphics I

Effective Date: Spring 2025

Submitted Date: Sep-24

Credit Hours: 3

IAI Number (if applicable): EGR941

Complete all that apply or mark "None" where appropriate:

Prerequisite(s): None.

Enrollment by assessment or other measure? Yes No

If yes, please describe:

Corequisite(s): None.

Pre- or Corequisite(s): None.

Consent of Instructor: Yes No

Delivery Method: <input checked="" type="checkbox"/> Lecture	2 Contact Hours (1 contact = 1 credit hour)
<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
<input checked="" type="checkbox"/> Lab	2 Contact Hours (2-3 contact = 1 credit hour)
<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)
<input type="checkbox"/> Practicum	0 Contact Hours (2-4 contact = 1 credit hour)
<input type="checkbox"/> Internship	0 Contact Hours (5-10 contact = 1 credit hour)

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION:

This course is designed to introduce to the beginning engineering student the principles of graphic language. The student will learn the principals involved in sketching, mechanical drawing, CAD, and all standards that govern those principles. Topics include sketching, computer aided drafting, dimensioning, tolerancing, multi-view orthographic representations, auxiliary views, section views, and working drawings. Upon completion of this course students will have a better understanding of the role of an engineer pertaining to design principles and working drawings. **IAI: EGR941**

ACCREDITATION STATEMENTS AND COURSE NOTES:

None.

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Introduction to the graphic language and design.
2. Introductions to computer aided drafting.
3. Instrumental drawing, freehand sketching, and lettering.
4. Geometric construction.
5. Shape description and multiview projection.
6. Sectional views.
7. Auxiliary views and descriptive geometry.
8. Dimensioning.
9. Tolerancing.
10. Design and working drawings.

INSTRUCTIONAL METHODS:

Lecture

Lab

Group projects

Presentations

EVALUATION OF STUDENT ACHIEVEMENT:

- Completion of assigned problems, required reading of text.
- Periodic tests.
- Group Projects
- Problem Based Learning
- Oral presentation
- Written report

INSTRUCTIONAL MATERIALS:**Textbooks**

Gethune, J. & Byrnes, D., (2023) Engineering Graphics with AUTOCAD. ISBN: 0-13-792999-4

Resources

Lab supplies for hand sketching

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

- 1) Communication – to communicate effectively.
- 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion.
- 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally.
- 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Use freehand sketching to sketch isometric, oblique and perspective pictorials.
2. Describe the basic terms, concept, and techniques of computer aided drafting.
3. Set up CAD drawings, use drawing aids, save drawings.
4. Using geometric construction techniques sketch shapes by hand and on CAD.
5. Using orthographic principles sketch multi view drawings of detailed parts.
6. Produce 2d multiview drawings on CAD.
7. Produce section views and auxiliary views by freehand sketching and in 2d CAD.
8. Find true sizes, distances, and angles between points, lines, and planes in three dimensions.
9. Dimension sketches and CAD drawings.
10. Produce CAD generated working drawings–both detail and, assembly.
11. Use Auto-CAD solid modeling software to produce 3d models and drawings of detailed parts.
12. Convert solid model parts to drawings, assemblies, and .stl files to model on a rapid prototyping machine.
13. To use the design process to design a product to be prototyped, and possibly, manufactured on campus.
14. To present final design with an oral and written report