

IT 111: Engineering Drafting with Computer Assisted Design

Fall 2024

I. Course details:

Class hours: TBD

Class room: TBD

Prerequisites: NONE

Text book: NONE

II. Instructor: Jared Reno

Office: CSTB, Room 3045

Office Phone: (985) 549-2192

Email Address: jared.reno@selu.edu

Office hours: *Tu, Th 8:30 a.m.-10:45 a.m 1:00pm-3pm*

Other times are available by appointment only

III. Course Description:

Credit 3 hours. Study of terminology, concepts, theories, and fundamental skills necessary to understand and operate a CAD system, and specifically using the system to graphically communicate through the basic elements of drafting including orthographic projection, sectioning, dimensioning, isometric and oblique pictorial representation, standard symbols, simple auxiliary views, precision, and tolerancing. Two hours of lecture and two hours of laboratory a week.

IV. Course Outcomes:

Upon Completion of this course, students will know how:

1. To problem-solving and use research skills required for handling materials, computing systems, and computer aided design for the industrial world.
2. To recognize different spatial orientations associated with two dimensional and three-dimensional design.
3. To create Orthographic and Isometric drawings following standers, codes, and procedures.
4. To use CAD software products and identify basic tools and processes common in multiple CAD systems. Specifically AutoDesk products
5. To understand and draw specific engineering drawings quickly and efficiently. Engineering drawing such as; sectional cuts, assemblies, rebar layouts, and technical illustrations.
6. To read, develop, interpret, and convey industrial processes into 2 dimensional drawings.
7. To create professional drafting plans that are neat, organized, accurate, and professional.

V. Student Objectives

[a] Mathematics, Science and Statistics

- [a.1] Students are able to apply mathematical and scientific principles to: manufacturing situations (AS, DDT); planning, scheduling, monitoring and improving production problems (SUP); or Construction Situation (CTEC).
- [a.3] Students are able to develop geometric constructions required in 2d layout, use appropriate graphical procedures for determining, slope, grade, pitch, true angles etc, and apply vector analysis in determining magnitudes, velocities etc. (DDT)

[c] Design

- [c.1] Students know industry standards and are able to read and interpret prints, symbols, and schematics. (AS, SUP)
- [c.2] Students are able to utilize a CAD system to produce engineering drawings, sketch product specifications, and develop product specifications. (AS, SUP)
- [c.3] Students are familiar with design of machine elements, with fasteners, cams and gears, with welding drafting. (DDT)
- [c.4] Students can utilize 3d modeling in machine design and for rapid prototyping, and rapid prototype models for design analysis. (DDT)
- [c.5] Students know how to understand properties/characteristics, and appropriate uses of blueprints, and are able to utilize a CAD system to produce engineering drawings and sketch product specifications. (CTEC)

[d] Manufacturing Processes

- [d.1] Students know the application and requirements for manufacturing processes; know tools and machines; are able to plan, route and monitor production schedules; know manufacturing systems and their applications; know, use and promote safe work procedures; are able to use inspection, metrology and measurement procedures effectively in manufacturing applications; and are knowledgeable of material handling. (AS, SUP)
- [d.4] Students have the ability to read and interpret manufacturing documentation such as technical drawings and diagrams, production plans, tooling plans, quality plans and safety plans. (SUP)

[e] Computer Applications

- [e.2] Students are able to use the computer proficiently in the programming of scheduling a project and project estimating, to use the tools necessary to read and convey information about scheduling and estimating, to solve problems and produce a correct solution using software related to scheduling, and to use the computer in merge of a scheduling and estimating. (CTEC)
- [e.3] Students are proficient in basic computer-aided design and drafting with technical depth in either mechanical, pipe or architectural, and in 3d modeling and editing. (DDT)

[g] Drafting Design Mathematics, Annotation, and Standards

- [g.1] Students understand the principles of orthographic projection: understanding multi-view drawing and sectioning, developing primary and successive auxiliaries, and revolutions, and utilizing CAD to produce orthographic drawings. (DDT)
- [g.3] Students understand Drawing Annotation and are able to accurately apply dimensioning and principles of tolerancing and including size, locational, and geometric, and apply notes. (DDT)

VI. Course Outline: This is subject to change with each semester. A more in depth outline will be given to you by your instructor in class or posted to the class' Moodle Page.

Class	Assignments	Class	Assignments	Class	Assignments
1	Assig. 1 Drafting Basics	11	Assig. 5 Cont. Basic CAD Drawings	21	Assig. 10 Sectional Drawings
2	Assig. 2 Hand Iso. Drawings	12	Assig. 6 Assembly Draw pt1	22	Test 3 pt 1 Technical Drawing
3	Assig. 3 Isometric of Part	13	Assig. 6 Cont. Assembly Draw pt1	23	Test 3 pt 2 Technical Drawing
4	Quiz 1&Assig. 3 Cont. Iso. Projection	14	Assig. 7 Isometrics in CAD	24	
5	Lecture Only Intro to Orthographic	15	Assig. 7 Cont. Isometrics in CAD	25	Lecture Only Blue Print Reading
6	Assig. 4 Using a Miter Line	16	Test 2 Pt1 AutoCAD Basics	26	Assig. 11 Material Takeoffs
7	Quiz 2 – Orthographic Assig. 4 Cont.	17	Test 2 Pt2 AutoCAD Basics	27	Assig. 11 Material Takeoffs
8	Test 1 Ortho and Iso	18	Assig. 8 Assembly Draw Pt 2	28	Assig. 11 Material Takeoffs
9	Lecture - Intro to CAD Assig. 5 - Basic CAD	19	Assig. 10 Sectional Drawings	29	Start Final Project CAD Prototyping
10	Assig. 5 Cont. Basic CAD Drawings	20	Assig. 10 Sectional Drawings	30	Final Project CAD Prototyping

VII. Minimum Topics Covered:

1. Spatial Orientation – Understanding Isometric, Orthographic, Perspective, Trimetric, etc.
2. Sketching Techniques – Hand drawn Isometric and Orthographic drafting skills
3. AutoCAD tooling – Drawing and Modifying toolbars, View Ports, Annotations, Hatching
4. Dimensioning – ADDA standards
5. Assembly Drawings – Block creation and manipulation
6. Section Drawings – Sectional cuts, sectional details, breakout sections
7. Blueprint reading – Understanding how to navigate plans using a drawing schedules
8. Blueprint creation – Become familiar with common symbols, how to understand scaling, how to create a professional and organizing portfolio, and creating takeoffs

Disaster Recovery/Operational Plans for the Continuity of Basic Educational Activities in Academic Courses

To ensure the continuity of courses in the event of a natural disaster of similar emergency, the students should refer to Moodle where they will find material to study, read, or homework to do that will cover the lost period.

VIII. Evaluation Procedure

- A. Late Assignments: Assignments are due at the time specified in the directions of the assignment. Late assignments will receive a 20% penalty for being late.
- B. Grade Calculation: Your grade will be calculated according to the following point

Distribution:

50%	Assignments
20%	Homeworks
10%	Quizzes

This is an estimate not an exact breakdown

Final grade will be determined based on the weighted average calculated and posted in the Moodle system. Grades will be computed by a curve method. In the event that the distribution does not present enough breaks or if it has too many breaks, letter grades should be approximately expected according to the following chart which is only given as an indication of probable expectations:

A	B	C	D	F
90-100	80-89	70-79	60-69	0-59

IX. Course Information:

1. **Internet Access and Computing Facilities:** Internet access is required for submission of assignments, Moodle use, and class communication. The university provides internet access on its facilities but is not responsible for such provisions outside its premises or for any associated costs for third party services. Students are expected to check their SELU-provided email accounts, as well as the class web site on Moodle, at least once every class day, more often if possible. For this class, every attempt will be made to provide access to necessary software for use on your own computer, however no guarantee is made about any individual student's ability to maintain the proper working environment. If you wish to have Internet access from off-campus, you will have to provide for Internet service at your own expense. Students are personally responsible for maintaining an adequate work environment on their own computers. If you are unable to do so, please remember that adequate on-campus labs are provided at SELU with the necessary Internet access, although necessary software may only be available on a limited schedule in special laboratories. Failure to maintain an adequate off-campus work environment will not be accepted as an excuse for late or incomplete work.
2. **Assignments:** There will be a number of assignments and exact requirements and due date will be given with each assignment. Assignments which are late, and without receiving the consent of the instructor prior to the due date, will receive reduced credit.
3. **Attendance Policy:** A student who has missed an excessive number (10%) of classes may be withdrawn from class by the instructor by the deadline for withdrawals (**Friday, October 27, 2023**). In particular, note that excessive unexcused absences are considered 10% of the total classes, which for this semester and class is three (3) classes. This is not automatic however, so you should consult the instructor if you think you may have been withdrawn from class. Do not assume that you will be automatically withdrawn from class for non-attendance. Even if you are allowed to continue, please understand that your grade will suffer from lack of attendance. You will miss material that is only available in class, and classroom participation is crucial to your success in this class. In the event of an excused absence, you are responsible for providing acceptable documentation and making arrangements for making up for the lack of participation. Every student is responsible for anything covered in class, even if it is not in the text. This includes announcements of assignments or test dates, so if forced to miss class, be sure to contact classmates for material you missed and for announcements made.
4. **Reporting Sexual Misconduct:** If you would like to report a sexually oriented crime, please be aware that the University Policy regarding Victims of Sexual Misconduct is located online at: http://www.southeastern.edu/resources/policies/assets/sexual_misconduct.pdf as well as page 75 in the University Student Handbook

at: http://www.southeastern.edu/admin/stu_affairs/handbook/index.html. The policy includes definitions of the various sexually oriented offenses prohibited by Southeastern as well as the reporting options for victims and the process of investigation and disciplinary proceedings of the University. For more information, log onto: http://www.southeastern.edu/admin/police/victims_soc/index.html. Southeastern faculty and staff are committed to supporting our students and upholding gender equity laws as outlined by Title IX. Please be aware that if you choose to confide in a faculty or staff member regarding an issue of sexual misconduct, dating violence, or stalking, we are obligated to inform the University's Title IX Coordinator or Deputy Title IX Coordinator, who can assist you in connecting with all possible resources both on- and off-campus. If you would like to speak with someone confidentially, the Student Counseling Center (985-549-3894) and the Student Health Center (985-549-2242) are both confidential resources.

5. **Withdrawal from Class:** The last day you may withdraw or resign from this class is **Friday, October 27, 2023.**
6. **Accommodation of Disabilities:** If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self-identify with the Office of Disability Services, **Student Union, Room 1304.** No accommodations will be granted without documentation from the Office of Disability Services. The deadline for registering or making accommodation changes is two weeks prior to the start of the Final Exam period. Any requests received after the deadline will generally be considered for the following semester.
7. **Class Decorum:** Free discussion, inquiry, and expression is encouraged in this class. Classroom behavior that interferes with either (a) the instructor's ability to conduct the class or (b) the ability of students to benefit from the instruction is not acceptable. Examples may include routinely entering class late or departing early; use of beepers, cellular telephones, or other electronic devices; repeatedly talking in class without being recognized; talking while others are speaking; or arguing in a way that is perceived as "crossing the civility line." Classroom behavior which is deemed inappropriate and cannot be resolved by the student and the faculty member may be referred to the Office of Judicial Affairs for administrative or disciplinary review as per the Code of Student Conduct which may be found at http://www.selu.edu/admin/stu_affairs/handbook/. In the event of a situation where a student legitimately needs to carry a beeper/cellular telephone to class, prior notice and approval of the instructor is required. In an online class, civility is expected in your online communications and website submissions. Offensive themes and language, "adult" materials, or obscenity is not appropriate in materials submitted for this class.
8. **Electronics:** Using computers, cell phones, tablets and other electronic devices including music players and headphones is prohibited in the classroom except if it is required for in-class activities approved by the instructor. In the event of a situation where a student legitimately needs to carry a beeper/cellular telephone to class, prior notice and approval of the instructor is required.
9. **Children in Class:** It is the policy of the University that the classroom is not a place for children, and that students are not to bring their family members for day care or baby sitting.

10. **Email Communication:** University e-mail policy reads (in part) as follows, "[Faculty] Uses of non-Southeastern e-mail addresses for communication with students regarding University business or educational matters are not acceptable..." In compliance with this policy, please use only your SLU e-mail address when contacting me about the course. The instructor is not obligated to respond to email addresses outside the domain of the university when personal non-catalog information about students is involved. Recall that your SLU e-mail accounts are accessible through the Internet via "Web-Mail" which can be reached from the SLU homepage: <http://www.selu.edu>.
11. **Communication Language:** please follow common etiquettes of communication when you exchange emails of any type with the instructor. Use a proper greeting that includes the name of the recipient and his title, then address your concern, and sign it with your name. Please abstain from using any foul language, profanity, or texting language.
12. **Plagiarism:** Students agree by taking this course that all required papers may be subject to submission for textual similarity to VeriCite for the detection of plagiarism. All submitted papers will be included as source documents in the VeriCite reference database solely for the purpose of detecting plagiarism of such papers. Use of the VeriCite service is subject to the Terms of Use posted on the VeriCite website.
13. **Changes in Requirements:** Due date changes, test postponements, etc. will be announced on Moodle. In case of emergencies, I may attempt to contact you by phone, so please make sure that I have your phone number and let me know if it changes. Notices may also be given by email, or on the class World Wide Web page. This syllabus will be posted on the class World Wide Web page, and that copy will always be the official copy, even if changes are necessary.
14. **Important dates:** Check the academic calendar available here: www.selu.edu/admin/rec_reg/calendar
 - a. **Withdrawal from Class:** The last day you may withdraw or resign from this class is **Friday, October 27, 2023.**
 - b. **Text Book Return: Monday, December 11, 2023**

X. Academic Integrity:

Students are expected to maintain the highest standards of academic integrity. Behavior that violates these standards is not acceptable. Examples are the use of unauthorized material, communication with fellow students during an examination, attempting to benefit from the work of another student and similar behavior that defeats the intent of an examination or other class work. Cheating on examinations, plagiarism, and improper acknowledgment of sources in essays and the use of a single essay or paper in more than one course without permission are considered very serious offenses and shall be grounds for disciplinary action as outlined in the Academic Integrity Policy located in the current General Catalogue.

XI. Guidelines for Success

1. Come to class on time every scheduled class meeting with materials needed to facilitate learning, such as the textbook, notebooks, pencil and calculator.
2. Take good notes.

3. The Moodle system will be used extensively in this course, monitor it often for course announcements, assignments, the syllabus and many external links for use in addition to the course textbooks.
4. Read and understand the assigned material from the text, if the material is not understood ask questions in class so the whole class can hear the answer.
5. Complete homework and submit homework when it is due, not later.
6. Turn cell phones to “silent” during class.
7. The use of tobacco (both smoked and chewed), eating or drinking is not allowed in the classroom or lab.
8. All students are expected to be appropriately attired; be respectful to the environment and your fellow students and be mindful of wearable items that may get caught in equipment, or cause electrical hazards, or not allow you to react swiftly in case of an emergency.
9. Observe SAFETY rules and posted notes in labs.