Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: EGDT
Course and Section #: 1040-X02
Course Title: Fundamentals of Technical Engineering and Drawing
Credits: 3

Course Description

Introduces fundamental technical engineering drawings, practices, and standards used by various engineering disciplines. Provides basic sketching, computer-aided drafting (CAD) tools, geometric construction, drawing layout, standard dimensioning, multi-view drawings, sectioning, plotting, checking, correcting, and other CAD and drafting skills.

Course Attributes

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Timothy Marcinowski

Student Learning Outcomes

1. Describe key elements of technical engineering drawings in conjunction with drafting standards and practices used in various engineering disciplines;
2. Apply key elements of engineering drawings in conjunction with drafting standards and practices used in various engineering disciplines to simple and complex technical engineering drawings;
3. Apply various CAD and drafting tools including geometric construction, scaling, and multiple views, to the completion of simple and complex technical engineering drawings;
4. Demonstrate in AutoCAD how to organize, manage, and transfer drawing data and files to clearly and accurately communicate technical information to end users;
5. Demonstrate in AutoCAD the application of dimensions, annotations, production constraints, scale, and other drafting techniques to various technical engineering drawings;
6. Demonstrate hand sketching and drafting techniques needed to complete various technical engineering drawings.

Course Materials and Texts

There are no materials or texts that the students need to acquire for this course.

Course Requirements

Course Assignments, Assessments, and Grading Policy

- Drawings: Using what is learned in the course each week, students will produce drawings that are submitted for feedback through Canvas.
- Quizzes: Throughout the semester, students will periodically complete a quiz outside of class that will test their knowledge.
- Final Exam: A final exam is given through Canvas in which students will produce a full mechanical drawing, including the creating of a PDF version of the drawing on a provided title-block.

Final grades will be based on total points received between the different categories.

A	94 - 100%	B-	80 – 82.9%	D+	67 – 69.9%
A-	90 – 93.9%	C+	77 – 79.9%	D	63 – 66.9%
B+	87 – 89.9%	C	73 – 76.9%	D-	60 – 62.9%
B	83 – 86.9%	C-	70 – 72.9%	F	0 – 59.9%

Required or Recommended Reading Assignments

There are no required reading assignments for this course.

General Description of the Subject Matter of Each Lecture or Discussion

- Course Orientation
  - Review of course orientation, syllabus, instructor information, software access, and Canvas orientation
- Module 1
  - Drawing tools in AutoCAD, and command execution for the different tools
  - Tools and Concepts:
    - Line, Circle, Zoom, Erase/Delete, Save, Undo, Help, Plot and Hatch
- Module 2
  - Snaps, modify tools, creation of a border and title block template
  - Tools and Concepts:
    - Rectangle, Offset, Layer Properties Manager, Dtext, Text, Object Snaps, Trim and Extend
- Module 3
  - Drawing with coordinate entry
  - Tools and Concepts:
    - Area, Properties and Coordinate Entry Systems
- Module 4
  - Orthographic projection and hand sketching techniques
  - Tools and Concepts:

        - Orthographic Projection, Free Hand Sketching Techniques and Geometric Construction
- Module 5
    - Orthographic projection in AutoCAD
    - Tools and Concepts:
        - Ortho, Fillet, Chamfer, Center Mark, Centerline and Transparent Layers
- Module 6
    - Architectural and Engineering Scales
    - Tools and Concepts:
        - Creating lines at specified scales and distances
- Module 7
    - Dimensioning and scaling drawings in AutoCAD
    - Tools and Concepts:
        - Text Styles, Dimension Styles, Dimension Types, Dimensioning Standards and Scaling in AutoCAD
- Module 8
    - Simple mechanical drawings
    - Tools and Concepts:
        - Tangent Tangent Lines, Polar Array, Mirror, and Dimension Precision
- Module 9
    - Complex mechanical drawings
    - Tools and Concepts:
        - Section Views, Feature Control Frames, Geometric Datums & Tolerances, Detail Veiws, Limit Dimensions and Basic Dimensions
- Module 10
    - Electrical Drawings
    - Tools and Concepts:
        - Array, Copy, Design Center, Ordinate Dimensions, Blocks and Dim Break
- Module 11
    - 2-Dimensional Isometric Drawing
    - Tools and Concepts:
        - Ellipse, Isocircles, Isometric Drafting and Toggling Between Drafting Planes
- Module 12
    - Architectural Drawings
    - Tools and Concepts:
        - Blocks, Hatching and Architectural Dimensioning
- Module 13
    - Civil Drawings
    - Tools and Concepts:
        - Spline, Text Mask, Coordinate Entry, Single Line Text, Blocks and Attributes
- Module 14
    - Structural Drawings
    - Tools and Concepts:
        - Copy, Bill of Materials, Text and Blocks
- Final Exam Prep
- Final Exam

Required Course Syllabus Statements

Generative AI
AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools (e.g. ChatGPT, Google Gemini, etc.) is permitted in this course for the following activities:

- Questions regarding software
- Finding information on related topics

The use of generative AI tools is not permitted in this course for the following activities:

- Producing Drawings
- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software
☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.
To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.