The University of Texas at El Paso
Department of Aerospace and Mechanical Engineering
Syllabus

COURSE INFORMATION

MECH 3135: Engineering Drawings and Inspection Lab
CRN: 25361
Term: Spring 2025
Delivery Method: In-person
Meeting Day and Time: Tuesdays and Thursdays, 3:00 – 4:20 pm
Location: Liberal Arts Building, Room 303

INSTRUCTOR INFORMATION

Keith Fong
Written Communication: Email
kbfong@utep.edu
Office hours: Engineering Annex Rm 315, by appointment

Teaching Assistant TBA
Written Communication: TBD
Hours: TBD

COURSE DESCRIPTION

MECH 3135 Engineering Drawings and Inspection Lab is a required 1-credit course for students majoring in Aerospace and Mechanical Engineering.

Engineering drawings are the means that engineers communicate the geometry and assembly of parts. Inspection is required to ensure that the physical parts and assemblies made from the engineering drawings are consistent with the engineering drawings dimensions and geometry.

The principal goal of the Engineering Drawing element of MECH 3135 is to familiarize students with the types of engineering drawings and their respective functions and how to utilize Geometric Dimensioning and Tolerancing standards from the ASME Y14.5 standards. Secondary goals include learning how to calculate tolerances and create engineering drawings using CAD software.

The principal goal of the Inspection element of MECH 3135 is to introduce the students to measurement systems, interpreting measurement data, sources of variation in measurement systems, and how to assess measurement system precision using the Gage R&R.

Students enrolled in MECH 3135 should have successfully completed MECH 1305.

COURSE OBJECTIVES AND UNIVERSITY LEARNING OUTCOMES

Upon completion of this course, students should be able to:

- Explain the purpose and benefits of using geometric dimensioning and tolerancing for engineering drawings.
- Explain what each of the tolerancing symbols mean, what datums are, what and how modifiers are used, and the two rules of ASME Y14.5.
- Appropriately apply ASME Y14.5 Geometric Dimensioning and Tolerancing to engineering drawings of simple designs
- Explain the criticality of reliable measurements.
- Explain what the elements of a measurement system are.
- Explain sources of measurement system variation and how they are revealed in Gage R&R graphs
- Demonstrate basic skills in the use of CAD software

REQUIRED MATERIALS

Computer: Students will be required to produce engineering drawings using Autodesk Fusion 360. Students are required to use a computer with minimum system requirements as required by the software.

Textbook: Wilson, B.A. (2021). GD&T: Application and Interpretation, 7th Edition. G-W Publisher. ISBN: 978-1-63563-872-1.

REFERENCE AND LEARNING MATERIALS

Online: There are many high quality online tutorials and explanations for ASME GD&T available for free. References to some of the tutorials will be shared during the class.

ASSIGNMENTS AND GRADING

Your grade for this course will be assessed based on the following weights:

- **10% Attendance**
- **90% Demonstration of Knowledge by Exam**

There will be minimal homework for this lab, most will be to view online tutorials. Attendance is essential. Most of the learning/instruction will be by collaborative effort of the students to answer questions posed to them. There are no assigned grades for the lessons, though students are expected to answer questions to the best of their ability so that instruction can be provided to address any learning deficiencies.

Students will be assigned to work in different teams regularly. Each student will be provided with a name tag to wear in class.

GRADING

Your final grade will be calculated based on the points you have accumulated as follows:

A	≥90
B	≥80 but <90
C	≥70 but <80
D	≥60 but <70
F	<60

The instructor reserves the right to revise this grading plan. However, students will be informed of any changes during the semester.

TECHNOLOGY REQUIREMENTS

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update Microsoft Office (or similar) to create presentations. This class will implement various software packages offered by Autodesk, specifically Fusion 360. Therefore, students are encouraged to visit the software website for system requirements. Installation instructions will be provided through lectures. When creating profiles, please use your UTEP email address as privileges from Autodesk will recognize your UTEP email address.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about Microsoft Office 365 and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you.

COURSE COMMUNICATION:

Here are the ways we can keep the communication channels open:

- Office Hours: By appointment.
- Email messages: UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24 hours of receipt. When e-mailing me, be sure to email from your UTEP student e-mail account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.
- Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

ATTENDANCE AND PARTICIPATION

Our class meetings are in-person as listed on page 1.

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Because in-class learning activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Catalog, "At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of "W" will be assigned before the course drop deadline and a grade of "F" after the course drop deadline." See Policies and Regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

OR

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

As a lab meant to engage in professional practice, it is expected that you will communicate with me prior to any absence not due to illness (yours or a close family member), incapacitation, or rendering emergency aid. It is understood that you may have interview travel, conference travel, or work conflicts—professional decorum is that you will communicate with me as soon as you know of the potential for an absence. These absences may be treated as excused if I am informed as early as possible prior to the absence so we can ensure learning outcomes are achieved.

DEADLINES, LATE WORK, AND ABSENCE POLICY

Assignments

- Deadlines for each assignment will be communicated when assigned. No late work will be accepted if the reason is not considered excusable.

MAKE-UP WORK

Make-up work will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. If you are experiencing difficulties submitting your work through Blackboard, please contact the UTEP Help Desk. You can email me your document as a last resort.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

GUIDANCE ON ARTIFICIAL INTELLIGENCE

Using AI for brainstorming

Some AI technologies or automated tools, particularly generative AI such as ChatGPT or DALLE, can be beneficial during the early brainstorming stages of an activity, and you are welcome to explore them for that purpose. However, keep in mind that AI-generated ideas are not your own and may hinder your ability to think critically and creatively about a problem. It is also important to remember that these technologies often “hallucinate” or produce materials and information that are inaccurate or incomplete—even providing false citations for use.

That said, you are not allowed to submit any AI-generated work in this course as your own. If you use any information or materials created by AI technology, you are required to cite it like you would any other source. Consider how this will affect your credibility as a designer and engineer before doing so. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

PLAGIARISM DETECTING SOFTWARE

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

COURSE RESOURCES: Where you can go for assistance

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources or visit https://www.utep.edu/advising/student_resources/studentsuccess-resource-hub.html.