

MENG 1301 – Engineering Graphics and Design
Course Syllabus

Semester / Year	Fall 2026
Catalog Description	An introduction to CAD-based engineering design graphics, including spatial visualization, projection theory, and parametric, feature-based solid modeling techniques. The course focuses on skill development through project-oriented and experiential learning activities in a team-based environment conducting mechanical engineering design.
Prerequisites	None
Section Number	001 Lecture, 001 Lab, 002 Lab, 003 Lab
Instructor Name	Dr. Chung Hyun Goh
Contact Information	Dr. Goh - Office: RBN 3007, Phone: 903-565-6615, cgoh@uttyler.edu
Class Type / Instruction Mode / Location	Face-To-Face / Lectures: MENG 1301-001: RBN 3035. Labs: MENG 1301-001L: TBA. MENG 1301-002L: TBA. MENG 1301-003L: TBA.
Class Time	- Lecture: Mo/Fr 12:20 PM - 1:15 PM - Lab-1 (001L): Tu 2:00 PM - 4:45 PM - Lab-2 (002L): Th 2:00 PM - 4:45 PM - Lab-3 (003L): Fr 9:05 AM - 11:50 AM
Office Hours	M 10:00 am – 11:00 am and Tu/Th 9:30 am – 10:30 am or by appointment
No. of Credits	3 credits
Required Textbook	- Students taking courses in Mechanical Engineering (ME) are expected to have a laptop at their disposal. For more details, refer to the Student Laptop Policy at the Department of Mechanical Engineering https://uttyler.smartcatalogiq.com/en/2022-2023/Catalog/College-of-Engineering - SOLIDWORKS Student Edition https://www.solidworks.com/product/students

Optional References	- James D. Bethune & Nathan Brown, Engineering Design and Graphics with SolidWorks 2023, Pearson. - David C. Planchard CSWP, Engineering Graphics with SOLIDWORKS 2024 A Step-by-Step Project Based Approach. SDC Publications. - David C. Planchard CSWP, Engineering Design with SOLIDWORKS 2024 A Step-by-Step Project Based Approach. SDC Publications. - Paul Kurowski, Engineering Analysis with SOLIDWORKS Simulation 2024. SDC Publications.												
Additional Rules and Requirements	Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric. Students can use AI programs (ChatGPT, Copilot, etc.) in this course. If you utilize an AI tool to help create content for an assignment, you must acknowledge and cite the tool's contribution to your work.												
Evaluation Method	Final course grades will be based on: <table> <tr> <td>Homework Assignments / Quizzes</td><td>30%</td></tr> <tr> <td>Lab Assignments</td><td>10%</td></tr> <tr> <td>Class work and participation</td><td>10%</td></tr> <tr> <td>Project 1 (Water Rocket Competition)</td><td>10%</td></tr> <tr> <td><u>Project 2 (Working Prototype Demo)</u></td><td><u>40%</u></td></tr> <tr> <td>Total</td><td>100%</td></tr> </table> Project 2 breakdown: - Project2 Idea & plan: 5% - Project2 Drawing files: 10% - Project2 Follow-up Presentation: 5% - Project2 Final Presentation: 10% - Project2 Prototype: 10% - Individual project grades are calculated from the team project grade and peer evaluations.	Homework Assignments / Quizzes	30%	Lab Assignments	10%	Class work and participation	10%	Project 1 (Water Rocket Competition)	10%	<u>Project 2 (Working Prototype Demo)</u>	<u>40%</u>	Total	100%
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Grading Policy / Scale	Letter grades: Scale: A: 90 - 100, B: 80 - 89, C: 70-79, D: 60 - 69, F: <60												
Important Events / Dates	Census Date: 09/08/2026 Drop for non-payment: 09/16/2026 Last day to withdraw from one or more 15-week courses: 10/30/2026 Thanksgiving holidays (faculty and students): 11/23-11/27/2026 Final exam period: 12/07-12/11/2026 End of 15-week session: 12/12/2026 MENG 1301: No comprehensive final exam. The Final Project Presentation replaces the final exam; date/time TBA. Academic Calendar: https://www.utt Tyler.edu/academics/academic-calendar-26-27/												

Attendance / Makeup Policy / other rules	Regular attendance is imperative if you want to do well on this course. Therefore, any student who incurs three unexcused LAB absences and/or six unexcused Lecture absents or more during the 15-week semester will result in an instant F grade for the course. In case you have to miss a class, it is your responsibility to keep up with the class work and be informed of all announcements made in the class on homework, tests etc. No makeup. Homework Assignments: Homework will be assigned according to the topics covered in lectures. Assignments are considered very important for the understanding of the course material. Completing your homework independently is an absolute necessity to do well in this course. All homework assignments are due in one week and no late work will be accepted.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Have the basic skills needed to interpret and create engineering drawings following the standard conventions of engineering graphical communication. 2. Generate multi-view and pictorial sketches to aid in the ideation phase of the design process. 3. Generate working 3D assemblies of mechanical systems. 4. Use sketches and CAD software as an integral tool in the design process and be able to persuasively evaluate and communicate the design. 5. Design and build a mechanical system prototype.
Tentative Topics / Course Plans	1. Engineering profession, design process, teamwork, and professional expectations 2. Engineering graphics fundamentals, visualization, and technical sketching 3. SolidWorks user interface and parametric solid modeling fundamentals 4. Orthographic, multiview, pictorial, and engineering drawing communication 5. Design intent, dimensioning, tolerancing 6. Introduction to Geometric Dimensioning and Tolerancing (GD&T) 7. Assemblies, mates, fasteners, standard components, and basic motion/fit concepts 8. Design documentation, technical communication, and project presentations 9. Prototyping and 3D printing / additive manufacturing 10. Reverse engineering and digital manufacturing/CAM overview 10. Modern engineering tools and technologies, including 3D scanning, simulation, and AI-assisted design overview 11. Team design project, prototype development, design reviews, and final presentation
University Policies	https://www.utt Tyler.edu/offices/academic-affairs/faculty-resources/syllabus-information/

Note:

The instructors reserve the right to modify the syllabus at any time during the semester to accommodate unforeseen circumstances, enhance the learning experience, or ensure the course objectives are met. Any changes will be communicated promptly to all students.