# MENG 1301 – Engineering Graphics and Design
## Course Syllabus

| | |
|---|---|
| **Semester / Year** | Fall 2023 |
| **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 and 004 Lab |
| **Instructor Name** | Dr. Muath Bani Salim |
| **Contact Info** | Office: RBN 3011, Phone: 903-565-6502, msalim@uttyler.edu |
| **Class Type / Location** | Face-To-Face / RBN 3035 for lectures and RBN 2022 for Labs. |
| **Class Time** | • Lecture: Mon and Wed 11:30 am – 12:30 pm<br>• Lab-1 (001L): Mon 08:00 am -10:45 am<br>• Lab-2 (002L): Tue 2:00 pm -4:45 pm<br>• Lab-3 (003L): Tue 5:00 pm – 7:45 pm<br>• Lab-3 (004L): Wed 5:00 pm – 7:45 pm |
| **Office Hours** | Mon, Tue, & Wed. 1 pm – 2 pm |
| **Credits** | 3 credits |
| **Required Textbook & Resources** | • 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<br>https://uttyler.smartcatalogiq.com/en/2022-2023/Catalog/College-of-Engineering<br><br>• SOLIDWORKS Student Edition<br>https://www.solidworks.com/product/students |
| **Optional References** | • David C. Planchard CSWP, Engineering Graphics with SOLIDWORKS 2022 A Step-by-Step Project Based Approach. SDC Publications.<br>• David C. Planchard CSWP, Engineering Design with SOLIDWORKS 2022 A Step-by-Step Project Based Approach. SDC Publications.<br>• Paul Kurowski , Engineering Analysis with SOLIDWORKS Simulation 2022. SDC Publications. |
| **Additional Requirements** | N/A |

| | |
|---|---|
| **Evaluation Method** | Final course grades will be based on:<br><br>Homework Assignments　　　　　30%<br>Class work and participation　　　10%<br>Project 1 (Catapult)　　　　　　10%<br>Project 2 　　　　　　　　　　50%<br>Total　　　　　　　　　　　　100%<br><br>Project 2 breakdown:<br>● Project2 Idea & plan: 2%<br>● Project2 Drawing files: 20%<br>● Project2 Video:10%<br>● Project2 Follow-up Presentation: 3%<br>● Project2 Final Presentation: 5%<br>● Project2 Prototype: 10%<br>● Individual project grades are calculated from the team project grade and peer evaluations.<br><br>**Scale:** A: 90 - 100, B: 80 – 89, C: 70-79, D: 60 – 69, F: <60 |
| **Grading Policy / Scale** | Letter grades |
| **Important Events / Dates** | 09/01/2023 (Fr): Census date<br>10/30/2023 (Mo): Last day to withdraw from one or more classes |
| **Attendance / Makeup Policy** | Regular attendance is imperative if you want to do well in this course. Therefore, any student who incurs **three unexcused LAB** absents 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<br><br>**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:<br>1. Have the basic skills needed to interpret and create engineering drawings following the standard conventions of engineering graphical communication.<br>2. Generate multi-view and pictorial sketches to aid in the ideation phase of the design process.<br>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.<br>5. Design and build a mechanical system prototype |
|---|---|
| **Tentative Topics** | • Introduction to SOLIDWORKS - Getting Started<br>• Parametric Modeling Fundamentals<br>• Geometric Constructions<br>• Orthographic Projection and Multiview Constructions<br>• CSG Concepts and Model History Tree<br>• Dimensioning and Notes<br>• Tolerancing and Fits<br>• Parametric Constraints Fundamentals<br>• Pictorials and Sketching<br>• Symmetrical Features and Part Drawings<br>• Datum Features in Designs<br>• Gear Generator and Content Center<br>• Advanced 3D Construction Tools<br>• Assembly Modeling and Motion Analysis |
| **University Policies** | https://www.uttyler.edu/academic-affairs/files/syllabus_information_2021.pdf |