MENG 1301 - Engineering Graphics and Design Syllabus

Semester / Year	*Spring/ 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*
Instructor Name	*Dr. Ibrahim*
Contact Information	*Email: aibrahim@uttyler.edu, Office: RBN 3008*
Class Type / Instruction Mode / Location	*Face to face* ***Lectures:*** *MENG 1301-001: RBN 3038.* ***Labs:*** *MENG 1301-001L: RBN 3041.*
Class Time	*MoWe 11:15 AM - 12:10 PM*
Office Hours	*Mo 9:20 AM - 11:00 AM* *Mo 12:15 PM-1:35 PM* *or by appointment.*
No. of Credits	*3*
Required Textbook	1. *SOLIDWORKS 2025: A Step-By-Step Tutorial Guide for Beginners by SDCAD Academy* 2. *SOLIDWORKS 2025 Tutorial: A Step-by-Step Project Based Approach Utilizing 3D Modeling*
Optional References	1. *James D. Bethune & Nathan Brown, Engineering Design and Graphics with SolidWorks 2023, Pearson.* 2. *David C. Planchard CSWP, Engineering Graphics with SOLIDWORKS 2024 A Step-by-Step Project Based Approach. SDC Publications.* 3. *David C. Planchard CSWP, Engineering Design with SOLIDWORKS 2024 A Step-by-Step Project Based Approach. SDC Publications.* 4. *Paul Kurowski, Engineering Analysis with SOLIDWORKS Simulation 2024. SDC Publications.*
Additional Rules and Requirements	1. *The instructor reserves 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.* 2. *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. 3. *AI tools are allowed to support students' learning and productivity, provided that their use aligns with academic integrity standards. When required, students must disclose their use of AI.*
Evaluation Method	*60% Assignments* *40% Final Project (TBD)*
Grading Policy / Scale	*Letter grades, scale:* *A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60*
Important Events / Dates	• *Check the University academic calendar before entering the dates:* *https://www.uttyler.edu/academics/academic-calendar-25-26/academic-calendar-15-week-and-summer.php* • *Census date: Jan 26, 2026* • *Last date to withdraw from one or more 15-week courses: March 30, 2026* • *Final date: April 27-30, 2026* • *Martin Luther King, Jr. Holiday, all offices closed, no classes: Janu 19, 2026* • *Spring break for faculty and students: March 9-13, 2026*
Attendance / Makeup policy / other rules	1. ***Mandatory Attendance****: Regular attendance **is required** for this course. Students are expected to attend every class session on time and stay for the entire duration.* 2. ***Absences****: Students are allowed a maximum of **3 unexcused absences** during the semester. Any additional unexcused absence will result in failing the course and an **F as a final grade**.* 3. ***Excused Absences****: Excused absences include illness (**with a doctor's note**), family emergencies, university-sponsored events, or other circumstances approved by the instructor **in advance**. Documentation must be provided within one week of the missed class.* 4. ***Tardiness****: Arriving late at class is disruptive and will be recorded. Three instances of tardiness will count as one unexcused absence. If you arrive more than 10 minutes late, it will be considered an absence.* 5. ***Participation:*** *Active participation is strongly encouraged to enhance your learning experience and requires regular attendance. Attending classes consistently and engaging in discussions will greatly benefit your understanding of the course material.* 6. ***Pop Quizzes****: The instructor reserves the right to administer **unannounced quizzes anytime throughout the semester.** These quizzes may cover recent material, reinforce key concepts, or **assess attendance**.* 7. ***Other Classes****: Engagement in other classes' activities, including related exams, meetings, or presentations, **will not be accepted as an excuse** for missing class. Any absence due to these commitments will count as a missed class.*

	8. ***Make-Up Work***: *Students who miss a class with a valid, documented excuse may be allowed to make up missed work at the instructor's discretion. It is the student's responsibility to contact the instructor to arrange for any make-up work.* 9. ***Notification of Absence***: *If you anticipate missing a class, please notify the instructor and provide the excuse note as soon as possible. Failure to inform the instructor **in advance** may result in the absence being marked unexcused.* 10. ***Withdrawal***: *If your absences become excessive and are impacting your performance, the instructor may recommend withdrawing from the course. Be mindful of the university's deadlines for course withdrawal.*
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. *SolidWorks interface, environment, and terminology* 2. *Basic and Advanced sketching and sketch editing tools* 3. *Dimensions and geometric relations* 4. *Basic and Advanced solid modeling* 5. *Reference geometry and curves* 6. *Assembly creation and assembly tools* 7. *Drawings and 2D views from 3D models*
University Policies	*https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information-rev122025.pdf*