

The University of Texas at El Paso

Graphic and Design Fundamentals  
MECH 1305  
Fall 2022

**Course Description** An introduction to solid modeling concepts and software, dimensioning, and basic computer-aided engineering.

**Instructors** Francisco Medina, Ph.D., Angel Ortega, Shadman Tahsin, Brandon Ramirez

**Office Hours** TBA  
OR  
by appointment (please give at least 24 hour notice)

**Email** [frmedina@utep.edu](mailto:frmedina@utep.edu), [agortega@miners.utep.edu](mailto:agortega@miners.utep.edu),  
[snabil@miners.utep.edu](mailto:snabil@miners.utep.edu), [bramirez16@miners.utep.edu](mailto:bramirez16@miners.utep.edu)

**Course Content** 2D Sketching  
3D Modeling  
Drafting  
Parts Assembly  
Simulation (stress/thermal)  
Rendering and animation  
CAM and 3D Printing  
Design Projects

**Course Requirements** Computer capable of running Autodesk's Fusion 360.  
Limited-term laptop checkout available at the Library and Engineering Technology Center. Desktops at Library may be used to complete assignments, but Laptops will be required for Exams and Quizzes.

**Software** Autodesk Fusion 360

**Available at** Fusion 360 | Free Software for Students and Educators | <https://www.autodesk.com/products/fusion-360/students-teachers-educators>

### **Grading**

Exams (2) 200

Quizzes (4) 100

Projects (2) 200

Total Points 500

### **Grades**

Your grade for this course will be assessed based on your performance in in-class quizzes (100 pts), 2 mid-term exams (200 pts), and 2 projects (200 pts). A minimum of four (4) in-class quizzes will be given throughout the semester. The content of a quiz could be the materials covered in previous sessions or assigned reading and practice material. There will be no make-up quizzes. Two exams will be given during the semester. Makeup exams will be given only for school-related travel or University Approved Reasons, and quizzes missed for these **same reasons** will not be made up but the next quiz will count double the grade. These reasons must be highly credible (no flat tire, sudden sickness, or suddenly family members become sick on day of assignment). **To pass this class the student MUST demonstrate proficiency with the concepts and software.**

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

**A > 450    450>B>400    400>C>350    350>D>300    300>F**

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

### **Attendance:**

Since in classroom attendance is primarily optional, attendance will be calculated differently. If you do not submit 2 of the weekly modules on time, that will be seen as missing 2 full weeks of class and you will be dropped from the course.

### **Study Guide**

Complete the modules as they are assigned and work on the examples provided on those even if they are not covered in class. This will help you learn the software further and get more practice with it and do better in class. Expect to spend 10 or more after-class hours each week on the subject. Show up to class every class meeting, establish a good studying and practice habit to work out the examples at home and you will do very well in the class.

### Reasonable Accommodation Policy

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate the student's educational opportunities.

**Web:** <http://www.utep.edu/dsso> **Phone:** (915) 747-5148 voice or TTY Fax: (915) 747-8712

**E-Mail:** [dss@utep.edu](mailto:dss@utep.edu)

### Quiz and Exam Policy

On the scheduled dates of quizzes and exams, all students must arrive at the session's starting time and be ready to present the assessment. To maintain the integrity of the assessments, students who arrive more than 15 minutes late to the class those dates will not be allowed to take the assessment and will receive a grade of zero. No exceptions will be made. All students other taking online or type of assessments must be present in the classroom. **The instructor reserves the right to assess work with oral explanation of procedure during any Quiz or Exam.**

### Policy on Cheating

Students are expected to be above reproach in all-scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts (Regents= Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). Scholastic dishonesty harms the individual, all students, and the integrity of the university; policies on scholastic dishonesty will be strictly enforced.

### Tentative Class Schedule:

Week	Topics	Assessments
1 (Aug. 22)	Introduction, Teaming & Projects	
2 (Aug. 29)	2D Sketches – Dimensioning	
3 (Sept. 5)	2D Sketches – Constraining	
4 (Sept. 12)	Fully Constraining a Sketch	Quiz 1
5 (Sept. 19)	3D Modeling - Extrude & Sweep	
6 (Sept. 26)	3D Modeling – Revolve & Modify	Exam 1
7 (Oct. 3)	Drafting	Quiz 2
8 (Oct. 10)	Assemblies	
9 (Oct. 17)	Assemblies	Quiz 3
10 (Oct. 24)	CAM & 3D Printing	

11 (Oct. 31)	Simulation	
12 (Nov. 7)	Simulation & Generative Design/Topology Optimization	Quiz 4
13 (Nov. 14)	Generative Design/Topology Optimization	
14 (Nov. 21)	Rendering & Animation	
15 (Nov 28)	Design Project	Exam 2
Dec 2	Dead day	
16 (Dec 5-9)	Final Exams	Exam/Design Projects