

The University of Texas at El Paso

Graphic and Design Fundamentals  
MECH 1305  
Fall 2023

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

**Instructors** Francisco Medina, Ph.D., Shadman Tahsin, Cristian Banuelos, Julio Diaz  
**TAs** Benjamin Ontiveros, Julio Diaz, Kevin Caballero

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

**Email:** Francisco Medina [frmedina@utep.edu](mailto:frmedina@utep.edu),  
Nabil, Shadman Tahsin [snabil@miners.utep.edu](mailto:snabil@miners.utep.edu);  
Banuelos, Cristian [cbanuelos4@miners.utep.edu](mailto:cbanuelos4@miners.utep.edu);  
Caballero, Kevin [kcaballero1@miners.utep.edu](mailto:kcaballero1@miners.utep.edu);  
Ontiveros, Benjamin, [bontiveros2@miners.utep.edu](mailto:bontiveros2@miners.utep.edu)  
Diaz, Julio [jcdiaz6@miners.utep.edu](mailto:jcdiaz6@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:**

<b>Week</b>	<b>Topics</b>	<b>Assessments</b>
1 (Aug. 28)	Introduction, Teaming & Projects	
2 (Sept. 5)	2D Sketches – Dimensioning	
3 (Sept. 11)	2D Sketches – Constraining	
4 (Sept. 18)	Fully Constraining a Sketch	Quiz 1
5 (Sept. 25)	3D Modeling - Extrude & Sweep	
6 (Oct. 2)	3D Modeling – Revolve & Modify	Exam 1
7 (Oct. 9)	Drafting	Quiz 2
8 (Oct. 16)	Assemblies	
9 (Oct. 30)	Assemblies	
10 (Nov. 6)	CAM & 3D Printing	Quiz 3
11 (Nov. 13)	Simulation	
12 (Nov. 20)	Simulation & Generative Design/Topology Optimization	Quiz 3
13 (Nov. 27)	Generative Design/Topology Optimization	Quiz 4
14 (Dec. 4)	Design Project	
15 (Dec. 8)	Design Project	

Final Exam Schedule:

Class	CRN	Day	Time	Final Exam Date	Final Exam Time
1	11049	MW	9-10.20	Wednesday, December 13	10:00 am – 12:45 pm
2	11178	TR	12-1.20	Tuesday, December 12	1:00 pm – 3:45 pm
3	11636	MW	12-1.20	Friday, December 15	1:00 pm – 3:45 pm
5	15502	TR	10.30-11.50	Thursday, December 14	10:00 am – 12:45 pm
6	15523	TR	3-4.20	Thursday, December 14	4:00 pm – 6:45 pm

Exams by Meeting Time

Your class meets...	Your Final Is....	
MWF 7:30 - 8:20 am or MW 7:30 – 8:50 am	Friday, December 15 <sup>th</sup>	7:00 am – 9:45 am
MWF 8:30 – 9:20 am	Monday, December 11 <sup>th</sup>	10:00 am – 12:45 pm
MWF 9:30 – 10:20 am or MW 9:00 – 10:20 am	Wednesday, December 13 <sup>th</sup>	10:00 am – 12:45 pm
MWF 10:30 – 11:20 am or MW 10:30 – 11:50 am	Friday, December 15 <sup>th</sup>	10:00 am – 12:45 pm
MWF 11:30 am – 12:20 pm	Wednesday, December 13 <sup>th</sup>	1:00 pm – 3:45 pm
MWF 12:30 pm – 1:20 pm or MW 12:00 pm – 1:20 pm	Friday, December 15 <sup>th</sup>	1:00 pm – 3:45 pm
MWF 1:30 – 2:20 pm or MW 1:30 – 2:50 pm	Wednesday, December 13 <sup>th</sup>	4:00 pm – 6:45 pm
MWF 2:30 – 3:20 pm or MW 3:00 – 4:20 pm	Monday, December 11 <sup>th</sup>	1:00 pm – 3:45 pm
MW 4:30 – 5:50 pm	Monday, December 11 <sup>th</sup>	4:00 pm – 6:45 pm
Mondays 4:30 – 7:20 pm	Monday, December 11 <sup>th</sup>	4:00 pm – 6:45 pm
Wednesdays 4:30 – 7:20 pm	Wednesday, December 13 <sup>th</sup>	7:00 pm – 9:45 pm
MW 6:00 - 7:20 pm	Wednesday, December 13 <sup>th</sup>	7:00 pm – 9:45 pm
Mondays 6:00 pm – 8:50 pm	Monday, December 11 <sup>th</sup>	7:00 pm – 9:45 pm
Wednesdays 6:00 pm – 8:50 pm	Wednesday, December 13 <sup>th</sup>	7:00 pm – 9:45 pm
TR 7:30 am – 8:50 am	Thursday, December 14 <sup>th</sup>	7:00 am – 9:45 am
TR 9:00 am – 10:20 am	Tuesday, December 12 <sup>th</sup>	10:00 am – 12:45 pm
TR 10:30 am – 11:50 am	Thursday, December 14 <sup>th</sup>	10:00 am – 12:45 pm
TR 12:00 pm – 1:20 pm	Tuesday, December 12 <sup>th</sup>	1:00 pm – 3:45 pm
TR 1:30 pm – 2:50 pm	Thursday, December 14 <sup>th</sup>	1:00 pm – 3:45 pm
TR 3:00 pm – 4:20 pm	Thursday, December 14 <sup>th</sup>	4:00 pm – 6:45 pm
TR 4:30 pm – 5:50 pm	Tuesday, December 12 <sup>th</sup>	4:00 pm – 6:45 pm