

Mechanical Engineering Design 1

EML 2023, Spring 2022

5th Period, MWF, MAEB 0211

6th Period, MWF, MAEB 0211

7th Period, MWF, MAEB 0211

Instructor: Dr. Andrés Rubiano, MAE-B 222

Office hours: Wednesday 9:45-11:45 over Zoom. Zoom Link: <https://ufl.zoom.us/j/94551397021>

If this time doesn't work for you, let me know at the beginning of the semester.

Teaching Assistants: Nicholas Sardinia - Email: nicholassardinia@ufl.edu

Damir Fayzulaev – Email: fayzulaevd@ufl.edu

Patrick Neal – Email: neap@ufl.edu

TA Office Hours:

Nicholas Sardinia:

Tuesday 12:50 – 2:50 PM

Thursday 8-10 PM

Damir Fayzulaev: <https://ufl.zoom.us/j/8536374938>

Thursday 8-10 AM

Patrick Neal: by appointment

Course Structure:

Before EVERY class meeting, you are to:

- study the one 8-12-minute lecture main video (1-hour worth of lecture content).
- replicate what the lecture goes through on your own computer.
- record this activity with the OBS settings provided during the first day of class.
- take notes.

Students are to attend all classes. Attendance will be taken, and participation will be noted.

Class meeting times will be used to:

- work on a problem related to the topic covered in the lecture, while recording your work.
- go over supplementary information about SolidWorks, OBS, and template configuration.
- answer specific questions about lecture videos and classwork.
- work on new SolidWorks exercises.
- take quizzes.

Course Assignments

Homework:

At least a day before every lecture day, you must watch the condensed lecture video, replicate the work shown in it, and record your work with OBS. This work can be randomly requested for grading.

If any of the in-class exercises is not completed during the lecture time, the exercise should be started over at home, and recorded from start to end. This work can be randomly requested for grading.

From time to time, a homework exercise will be assigned. Students should work on it at home, and once again, record their work.

Quizzes:

there will be a quiz every week; quiz time will appear limited and quiz problems, challenging, if class exercises and homework assignments are not completed. Quiz submissions will be the part, part drawing, or assembly file that the quiz asks for, besides the recording of your work in SolidWorks.

Project:

Groups of two will work together to submit their project on April 15th, 2022. Project updates will be requested randomly and without previous notice between the date of posting and the final submission date. The lectures between the 6th and the 13th of April will cover a generalized version of a specific problem from groups asking for help.

Final Exam: Two-part exam, April 18th and April 20th.

Grading: Quizzes (40%), Final Exam (30%), Project (30%).

Course Content and Schedule:

Date	Day	Content	Lecture & Examples
January 5	W	Isometric and Orthogonal Views in SolidWorks	https://youtu.be/Y4gsOdYpiVQ
January 7	F	SolidWorks Interface and Basics/Quiz	https://youtu.be/bchu5JNc3YA
January 10	M	Extrusion Feature and Sketches	https://youtu.be/OwZMn3kqU2s
January 12	W	Reference Geometry	https://youtu.be/rcEnT14cZEG
January 14	F	Quiz	
January 17	M	Holiday	
January 19	W	Relations, Trimming, and Offsetting	https://youtu.be/j6r2bLoxhS0
January 21	F	Quiz	
January 24	M	Mirroring Sketch and Features	https://youtu.be/ofj8KCvjTl8

January	26	W	Revolve and Arrays	https://youtu.be/A-iWmxzJrlQ
January	28	F	Quiz	
January	31	M	2D and 3D Sweeps	https://youtu.be/WZjkVcYyOoA
February	2	W	Helix Sweep	https://youtu.be/gUzh9vTvwEQ
February	4	F	Quiz	
February	7	M	Loft and Shell	https://youtu.be/rzhLnY7JbRw
February	9	W	Import Pictures, Autotrace, and Combine Features	https://youtu.be/XCdU01M7t-k
February	11	F	Quiz	
February	14	M	Equation Driven Curve & Parametric Equations	https://youtu.be/3ToFwSf916k
February	16	W	Toolbox Add-In for Machine Components	https://youtu.be/d0Cl7tyYLz8
February	18	F	Quiz	
February	21	M	Drawings Basics in SolidWorks	https://youtu.be/9qJS2hRL1Sg
February	23	W	Auxiliary and Section Views	https://youtu.be/wskNxGZGqc4
February	25	F	Quiz	
February	28	M	MOST Helper Views for Part Drawings	https://youtu.be/tAWIPVKcqoI
March	2	W	Assemblies, Mates, and Exploded Views	https://youtu.be/iYnt8jxwllM
March	4	F	Quiz	
March	7	M	Spring Break	
March	9	W	Spring Break	
March	11	F	Spring Break	
March	14	M	Editing Assemblies, Drawings, Motion and BOM	https://youtu.be/kUnMhjPQ2H0
March	16	W	Fasteners and Threaded Holes	https://youtu.be/Dvc8k7VnnWw
March	18	F	Quiz	

March	21	M	Advance Mates - Gears and Threaded Components	
March	23	W	Spring Compression and Elongation	
March	25	F	Quiz	
March	28	M	Animation	https://youtu.be/QgQ40z_ZI4k
March	30	W	Dynamics - Misc. Animations and Mates	
April	1	F	Quiz	
April	4	M	FEA in SolidWorks	
April	6	W	Rendering	
April	8	F	Quiz	
April	11	M	Project Specific Problem	
April	13	W	Project Specific Problem	
April	15	F	Project Submission	
April	18	M	Final Exam Part 1	
April	20	W	Final Exam Part 2	

Other Course Information

Grading Scale: The final grade will be calculated by the following table.

Table 1. Grading Table. *%GE = Percent Grade Earned.*

Percentage Range	Grade Point
93.33 %GE 100.00 A	4.00
90.00 %GE 93.33 A-	3.67

86.67	%GE	90.00	B+	3.33
83.33	%GE	86.67	B	3.00
80.00	%GE	83.33	B-	2.67
76.67	%GE	80.00	C+	2.33
73.33	%GE	76.67	C	2.00
70.00	%GE	73.33	C-	1.67
66.67	%GE	70.00	D+	1.33
63.33	%GE	66.67	D	1.00
60.00	%GE	63.33	D-	0.67
00.00	%GE	60.00	E	0.00

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
3) an ability to communicate effectively with a range of audiences	High
4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Low
5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	Low
6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Medium
7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Medium

Grade Corrections:

Corrections of grades should be submitted to instructor within 5 business days of the grade posting in writing with a concise statement of why you believe there has been an error. Note that the instructor has the final determination in the grade assigned. If a grade change is determined, it may result in a lower or higher grade.

Academic honesty

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others.

Accommodation for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Health and Wellness

- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.
- Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.
- Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161.
- University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Software Use

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy regarding grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu