



SYLLABUS
MENG 1202 – 101: SOLID MODELING
(Required Course)
Fall 2022

COURSE INSTRUCTOR

Dr. Zeki Ilhan (zeki.ilhan@msutexas.edu)
Office: McCoy Hall 219E
Phone: (940) 397-4004

TEACHER ASSISTANT

Ms. Melina Riviere (mtriviere0907@my.msutexas.edu)

CLASS SCHEDULE

| <i>Days</i> | <i>Time</i> | <i>Location</i> |
|-------------|---------------------|-----------------|
| Monday | | |
| Tuesday | | |
| Wednesday | | |
| Thursday | 02:00 pm – 04:50 pm | MY 207 |
| Friday | | |

OFFICE HOURS

| <i>Days</i> | <i>Time</i> | <i>Location</i> |
|-------------|---------------------|-----------------|
| Monday | 11:00 am – 01:00 pm | MY 219E |
| Tuesday | 05:00 pm – 06:00 pm | MY 219E |
| Wednesday | | |
| Thursday | 05:00 pm – 06:00 pm | MY 219E |
| Friday | 11:00 am – 12:00 pm | MY 219E |

ATTENDANCE POLICY

This course will be delivered in face-to-face mode. Attendance is mandatory, and it represents a part of your overall grade. Attendance will be **checked randomly on select lectures** using the AttendMe app. (Detailed instructions on how to download and use the app will be made available in the lectures).

COVID-19 UPDATES & PROCEDURES

For the most up-to-date information, please refer to the Updated COVID-19 Procedures at MSU Texas website: (<https://msutexas.edu/coronavirus/index.php>)

LIVESTREAMING OPTION

Livestreaming option is possible **only** for those students who cannot attend the class due to a **well-documented** illness case or any other approved reasons such as COVID quarantine. To request access for livestreaming, students must contact the instructor via email and provide their **doctor's report** or **absence notification**. The instructor will then provide a Zoom link to accommodate those students for livestreaming the class.

D2L (DESIRE 2 LEARN) & PULSE APP

I will use the D2L platform (<https://d2l.msutexas.edu/d2l/home>) for posting the syllabus, course communication, lecture notes, assignments, and grades. Mobile version of the D2L platform is the Pulse app, which is available for free on iPhone, iPad, and Android devices. Consider downloading Pulse for instant notifications on course announcements, new content, grades, and more.

STUDENT RESOURCES

For quick links to numerous offices and student services available on the MSU Campus, please refer to the MCOSME Student Resources website: (https://msutexas.edu/academics/scienceandmath/student_resources.php)

CATALOG DESCRIPTION

Computer-aided design and problem solving. Use of solid modeling to work with the concepts associated with the design of such machine elements as nuts, bolts, chains, and gears.

TEXTBOOKS

Make: 3D Printing,

by Anna Kaziunas France, MakerMedia, 2014. ISBN-13: 9781457182938

Introduction to Solid Modeling Using SolidWorks 2022 (or 2021, or 2020)

by W.H. Howard & J. Musto, McGraw Hill. ISBN-13: 9781264163090

LIST OF TOPICS COVERED*

- Intermediate to advanced CAD techniques.
- Solid modeling of threaded parts.
- Solid modeling of gears.
- Auxiliary Views
- SolidWorks® assemblies via mechanical mates.
- SolidWorks animations and motion study.
- Overview of subtractive manufacturing methods.
- Introduction to 3D printing.

**Additional material might be covered as the time permits.*

GRADING SCHEME

The overall grade will be based on the scores earned on the tests, homework assignments, term projects, and attendance. Three exams sum up to 70% of the total grade, while homework scores sum up to an additional 15%, term projects account for 10%, and the attendance represents the remaining 5%. The contribution of each grade item to the overall score is summarized in Table 1.

Table 1: Percentage contribution of each grade item to the overall grade.

| Grade Item | Contribution |
|---------------|--------------|
| Test 1 | 25% |
| Test 2 | 25% |
| Final Exam | 20% |
| Homework | 15% |
| Term Projects | 10% |
| Attendance | 5% |
| TOTAL | 100% |

FINAL EXAM

Thursday, December 8, 1:00 pm – 3:00 pm

CONFLICT RESOLUTION PROCESS

1. In the event of an issue with the course or the instructor, the student should first contact the instructor. The faculty and the student will discuss the issue. Hopefully, a resolution is reached.
2. The student should notify the faculty via email again if the issue still did not get resolved after the first communication.
3. If not resolved, the student could then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, (raj.desai@msutexas.edu), and discuss the issue.
4. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the result of this discussion with the student. Hopefully, a resolution is reached on the issue after this step.
5. The student should notify the Chair via email if the issue still did not get resolved.
6. The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee, if necessary.

COURSE ORGANIZATION AND ASSESMENT

- **Course Format:** This course consists of one 170-minute session each week. Class meetings will contain lecture sessions that cover the relevant topics for that particular class. Not all material can be covered during the class session, hence, expect to spend extra time outside of class to finish reviewing the material.
- **General Study Guidelines:** Plan on spending few hours outside of class *each week* to review the theory lecture, in-class drawing exercises, and complete the assignments/projects. Do not wait until the last day to prepare for the exams. Utilize office hours whenever you need help about the course material.
- **Student Attitude:** After the class starts, the use of phones, conducting private discussions, working on anything that is not directly related to the course, and making derogatory remarks about your classmates or instructor will not be accepted and may result in your dismissal from the class.
- **Midterm Progress Reports:** In order to help students keep track of their progress toward course objectives, the instructor will provide a Midterm Progress Report for at-risk students through their WebWorld account. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students with a midterm grade below a C should talk to the professor and seek out tutoring.
- **Homework Evaluation Method:** Your performance will be tested regularly throughout the semester by homework assignments. While several homework problems may be assigned as part of a homework assignment, it may be the case that only a subset of problems will be graded. However, you must attempt all problems. *Do not try to guess which problems will not be graded.*
- **Term Project:** A 3D-printing term project will be assigned later in the semester. The project requires teamwork for solid modeling and 3D-pinting of an item that poses some modeling and/or tolerancing challenge. More details on the term project will be posted later in the semester in D2L.
- **Late Assignments:** Homework assignments must be submitted on the due date, at the due time. Late assignments will *NOT* be accepted. However, depending on the overall class progress, *one (or two) of the lowest graded assignments may not be included in the final grade.*
- **Exam Make-up:** Make-up exams will be given only in case of an *emergency* (accompanied by a doctor's report) or a major conflict due to a scheduled *athletic event* or a *conference*.
- **Grade Appeals:** Grade appeals should be resolved with the instructor. If unresolved, they need a formal written appeal to the dean of the college in which the course was taught. For more information, consult the Grade Appeal Checklist through the MCOSME Student Resources website, or through the link: (https://msutexas.edu/academics/scienceandmath/_assets/files/grade_appeal_checklist1.pdf)
- **Academic Honesty Appeals:** Academic honesty appeals are reported to the chair. If unresolved, they are appealed to the department chair of the department offering the course. Consult the Academic Honesty Checklist through the MCOSME Student Resources website, or through the link: (https://msutexas.edu/academics/scienceandmath/_assets/files/academic_honesty_checklist1.pdf)
- **Disability Support Services:** If you have a documented disability that will impact your work in this class, please feel free to contact the instructor and the Disability Support Services to accommodate your needs through their website: (<https://msutexas.edu/student-life/disability>)
- **Disclaimer Statement:** Information contained in this syllabus, other than grading policies, may be subject to change with advance notice, as deemed appropriate by the instructor.

COURSE OBJECTIVES IN RELATIONSHIP TO ABET STUDENT OUTCOMES

Table 2: Course objectives matched with the ABET student outcomes (1-7)

| COURSE OBJECTIVES | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Students will be introduced additive manufacturing via 3D printing and 3D scanning. | X | X | X | | | | |
| Students will be able to use slicing software to prepare part models ready for 3D printing. | X | X | X | | | | |
| Students will be able to use intermediate to advanced CAD techniques such as loft, sweep, and auxiliary surfaces. | X | X | X | | | | X |
| Students will be able to generate mechanical assemblies using the “mechanical mate” options in SolidWorks®. | X | X | | | | | X |
| Students will be able to perform gear animations with motion study in SolidWorks®. | X | X | | | | X | |
| Students will be able to model threaded fasteners based on the thread codes in both metric and ANSI/inch system. | X | X | | | | | X |

Table 3: Detailed descriptions of the ABET student outcomes (1-7) listed in Table 2.

| ABET OUTCOME | DESCRIPTION |
|--------------|--|
| 1 | an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. |
| 2 | an ability to apply engineering design to produce solutions that meets specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. |
| 3 | an ability to communicate effectively with a range of audiences. |
| 4 | an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. |
| 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. |
| 6 | an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. |
| 7 | an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. |