



SYLLABUS
MENG 1202-202: SOLID MODELING
(Required Course)
Spring 2020

Instructor: Dr. Zeki Ilhan

Office: McCoy Hall 219E

Office Phone: (940) 397-4004

E-mail: zeki.ilhan@msutexas.edu

Office Hours: Monday, Wednesday, and Friday: 10:00 am – 12:00 pm
Tuesday and Thursday: 3:00 pm – 5:00 pm

Teacher Assistant: TBA

Course Schedule: Friday: 2:00 pm – 4:50 pm

Class Location: McCoy Hall 207

CATALOG DESCRIPTION

Intermediate to advanced study of computer-aided design and 3-D printing concepts. Use and integration of solid modeling and 3-D printing techniques with an emphasis on mechanical design. In depth study of computer based and physical prototypes/models.

COURSE PRE-REQUISITES

MENG 1132

REQUIRED TEXTBOOKS

- Make: 3D Printing, by Anna Kaziunas France, MakerMedia.
- Introduction to Solid Modeling Using SolidWorks 2018 (or 2019), by William E. Howard and Joseph C. Musto, McGraw-Hill

TOPICS COVERED

- Introduction to 3-D printing
- Intermediate to advanced computer aided design techniques
- Prototype development and design
- Auxiliary views
- Motion study and mechanism animations in SolidWorks
- Design of molds and sheet metals
- Solid modeling of gears
- Assemblies with mechanical and advanced mates

Additional material may be covered as time permits.

GRADING

The overall grade for the course will be based on the scores earned on the exams, homework and lab work assignments, term project and the attendance. The homework and lab work assignments account for 20% of the course grade, exams account for 60%, term project accounts for the 10%, and attendance accounts for 10%. The overall score for the course is determined as follows.

Table 1: Percentage contribution of each assignment.

Assignments	Contribution
Test 1	20%
Test 2	20%
Final Exam	20%
Homework and Lab Works	20%
Project	10%
Attendance	10%
TOTAL	100%

FINAL EXAM

Thursday, May 14, 3:30 pm – 5:30 pm

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 and the lab works in certain weeks.
- **Class Attendance:**
You are expected to attend class regularly and are responsible for notes, homework assignments, labs, and exams missed while absent. **Attendance is considered very important in this course, and counts for 10% of the grade.**
- **Student Attitude:**
Once class starts, the use of cell 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. Poor attitude directly affects the course grade.
- **Midterm Progress Reports:**
In order to help students keep track of their progress toward course objectives, the instructor for this class 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 earning below a C at the midway point should schedule a meeting with the professor and seek out tutoring.

- **Evaluation Method:**
Your performance will be tested regularly throughout the semester by three exams, one project, and homework and lab works. While several exercises may be assigned as part of a homework assignment, it may be the case that only a subset of exercises will be graded. **Do not try to guess which (if any) problems will not be graded.**
- **Late Assignments:**
Homework assignments must be turned in **on the due date, at the beginning of class.** Once class starts, late assignments will **NOT** be accepted. **Printing issues are not a valid excuse for late homework. Bring a digital device with storage capability to each class and save all classwork at least until final grades are posted. Issues with the unsaved material are not a valid excuse for late homework.**
- **Exam Make-up:**
You are expected to take all exams on the scheduled date and time. However, if for some acceptable reason you are not able to do so, then you must inform the instructor in advance. **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 an academic conference.**
- **Desire-to-Learn (D2L):**
Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication. You can log into D2L through the MSU Homepage.

GENERAL EDUCATION STATEMENT

Students in this course must demonstrate their proficiency in oral and written communication through written homework assignments and exams.

ACADEMIC INTEGRITY POLICY

Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the student handbook regarding student responsibilities & rights, and the intellectual property policy information about procedures and what constitutes acceptable on-campus behavior.

DISABILITY SUPPORT SERVICES

If you have a documented disability that will impact your work in this class, please contact me to discuss your needs.

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.

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information, please refer to [campus carry rules and policies.](#)

COURSE LEARNING OBJECTIVES AND RELATIONSHIP TO STUDENT OUTCOMES

Table 2: Course learning objectives related to the ABET criteria (1-7)

Outcome-Related Course Learning Objectives	1	2	3	4	5	6	7
Using advanced 3D design techniques such as lofts, sweeps, and auxiliary surfaces to create solid parts.	X	X	X				
Using slicing software to prepare a part model for 3D printing.	X	X	X				
Scanning and 3D printing of a part.	X	X	X				
Using 3D resources for 3D printing of practical objects.	X	X	X				
Generating mechanical assemblies using the advanced and mechanical mate options in the SolidWorks software.	X	X	X				
Using SolidWorks software for mechanism animations and motion study.	X	X	X			X	

Table 3: Detailed interpretations of the ABET criteria (1-7) listed in Table 2.

ABET Criteria	Interpretation
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.