SYLLABUS
MENG 1202 – 101: SOLID MODELING
(Required Course)
Fall 2020

COURSE INSTRUCTOR
Dr. Zeki Ilhan (zeki.ilhan@msutexas.edu)
Office: McCoy Hall 219E
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TEACHER ASSISTANT
TBA

CLASS SCHEDULE			ONLINE OFFICE HOURS		
Days	*Time*	*Location*	*Days*	*Time*	*Location*
Monday			Monday	03:00 pm – 05:00 pm	via Zoom
Tuesday			Tuesday		
Wednesday			Wednesday	01:00 pm – 02:00 pm	via Zoom
Thursday			Thursday	05:00 pm – 06:00 pm	via Zoom
Friday	02:00 pm – 04:50 pm	MY 207	Friday	09:00 am – 10:00 am	via Zoom

DELIVERY MODE: *"FULLY FACE-TO-FACE"*
This course has been planned as a fully face-to-face course for Fall 2020. The class will meet in its regularly scheduled room but will utilize ***social distancing*** and an assigned ***seating chart***. When the university transitions to fully online after Thanksgiving, we will review during the last week of class and hold our finals virtually.

MASK REQUIREMENT
During class, each student must comply with MSU's requirement for wearing a face covering as mandated in the MSU Taskforce to Return to Campus.

ATTENDANCE POLICY
Face-to-face attendance is no longer mandatory but highly encouraged as it increases motivation. However, for the health and safety of the others, ***please livestream the class online whenever you are feeling sick or showing COVID-related symptoms.***

LIVESTREAMING OPTION (ZOOM)
For those students who cannot physically attend the class due to health and illness-related issues, livestream of the face-to-face classroom sessions is possible via the *"Zoom"* app. Detailed instructions and the link to connect via *"Zoom"* is posted in D2L. Note that the same *"Zoom"* app will also be used to join virtual office hours without need for pre-coordinating with the instructor. Simply click on the *"Zoom"* link provided in D2L during any of the office hours listed above.

D2L (DESIRE 2 LEARN) & BRIGHTSPACE PULSE APP
I will use D2L online platform for posting syllabi, lecture notes, assignments, and grades. You should regularly check D2L and the email hosted via D2L for important course communication. Mobile version of the D2L platform is the Brightspace Pulse app, which is available for free on iPhone, iPad, and Android devices. Consider downloading Pulse app for instant notifications on course announcements, new course content, grades, and more.

TECHNOLOGY REQUIREMENT

Students are required to have access to a hardware (computer, laptop, or iPad with webcam, microphone, and/or speakers), and a basic scanning software such as Camscanner. Students may access Microsoft Office 365 for free at the Office 365 for students site. Be sure to review D2L technology requirements for more information. ***Chromebooks are not recommended,*** as they will not work with D2L. MSU has negotiated purchase options with vendors to help you make a technology purchase if you are looking into a computer for fall.

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. 2013.
Introduction to Solid Modeling Using SolidWorks 2020 (or 2018/19), by Howard & Musto, McGraw Hill.

Reference textbook (optional): Manufacturing Processes, by DuVall & Hillis, Goodheart-Wilcox Company.

LIST OF TOPICS COVERED

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

GRADING SCHEME

The overall grade for the course will be the accumulation of the scores earned on the homework assignments, semester project, two midterm tests and the final exam. Exams account for 65% of the total grade, while homework scores sum up to an additional 20%, and the term project represent the remaining 15% of the grade.

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

Assignments	Contribution
Test 1 (in-class)	25%
Test 2 (in-class)	25%
Final Exam (online)	15%
Homework	20%
Term Project	15%
TOTAL	**100%**

FINAL EXAM (ONLINE)

Thursday, December 10, 3:30 pm – 5:30 pm *(more instructions will be given towards Thanksgiving).*

CONFLICT RESOLUTION PROCESS

1. In the event of an issue with the course or the instructor, the student should first contact the instructor face to face or via e-mail. The faculty and the student will discuss the issue face to face or via email. 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 50-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.

- **Student Attitude:** Once class starts, the use of cell phones, conducting private discussions, using the computer (unless requested by the instructor), 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 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.

- **Homework Evaluation Method:** Your performance will be tested regularly throughout the semester by homework assignments. While several questions/problems may be assigned as part of a homework, it may be the case that only a subset of the questions/problems will be graded. However, you must attempt all the problems/questions. ***Do not try to guess which problems/questions will not be graded.***

- **Term Project:** A term project will be assigned toward the end of the semester. The project requires solid modeling of a part intended for 3D printing. More advanced CAD techniques should be used such as loft, sweep, flex, and/or boundary boss/base. More details on the term project will be posted in D2L later.

- **Late Assignments:** Homework and project assignments must be turned in 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 homework 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.***

- **General Study Guidelines:** Plan on spending few hours outside of class each week to review the material weekly, and to work on homework assignments. Do not wait until the last day to start the homework or to prepare for exams. Utilize office hours whenever you need help.

- **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 the Disability Support Services and the instructor to accommodate 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.

- **Campus Carry Rules/Policies:** 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 OBEJCTIVES IN RELATIONSHIP TO ABET STUDENT OUTCOMES

Table 2: Specific outcomes of instruction matched with the ABET student outcomes (1-7)

SPECIFIC OUTCOMES OF INSTRUCTION	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 mechanism animations and motion study in SolidWorks®.	X	X	X			X	
Students will be introduced the basics of the chip-based (subtractive) manufacturing techniques.	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.

Prepared by Zeki O. Ilhan, August 2020.