ENS 209-A (10825)
Introduction to Computer Aided Drafting and Solid Modeling
Fall 2021 – 2022 (202101)

Lecture Time and Location:
Monday   09:40-11:30   **(University Center G030 & Online Synchronous)**
Wednesday   12:40-13:30   **(FASS G062 & Online Synchronous)**
Online Lectures ZOOM Link: https://sabanciuniv.zoom.us/j/4911122195

Section A1:   **Online-Synchronous Courses on ZOOM Meeting**
(TA: Ömer Safa Çavuş**)**   **LAB: Fri** 09:40-11:30 / **REC: Fri** 11:40-12:30
ZOOM Link: https://sabanciuniv.zoom.us/j/4134936619

Section A2:   **Online-Synchronous Courses on ZOOM Meeting**
(TA: Fatih Eroğlu**)**   **LAB: Fri** 09:40-11:30 / **REC: Fri** 11:40-12:30
ZOOM Link: https://sabanciuniv.zoom.us/j/3593385246?pwd=QUp5aDV0eFdndTZGOEM2WDFDT1dmZz09

Instructor:
Utku Seven, Ph.D.

Office: FENS L017
e-mail: useven@sabanciuniv.edu
Office hours: Tuesday 14:40 – 16:30
Tel: 9595

Teaching Assistants/Office Hours (contact your TA for location or appointment):

Ömer Safa Çavuş   (omersafa@sabanciuniv.edu)   Office Hour (**MON** 17:00-19:00@**Online Meeting**)
Fatih Eroğlu   (fatiheroglu@sabanciuniv.edu)   Office Hour (**TUE** 09:40-11:30@**Online Meeting**)

Grading:

Amin Bagherzadeh   (bagherzadeh@sabanciuniv.edu)   Office Hour (**TUE** 08:40-10:30 @**Online Meeting**)
ZOOM Link: https://sabanciuniv.zoom.us/j/6690034578?pwd=TjdoUlQrNTJEL2JtYnhnZzdtcUptZz09

Muhammed Hasan Arikan (harikan@sabanciuniv.edu)   Office Hour (**THU** 18:30-20:30@**Online Meeting**)
ZOOM Link: https://sabanciuniv.zoom.us/j/7193185120

Course Book:
• Technical Drawing with Engineering Graphics, 14/E by Giesecke, Hill, Spencer, Mitchell, Dygdon, Novak, Lockhart & Goodman, Prentice Hall, ISBN-10: 0135090490.
Purchase link: https://www.homerbooks.com/urun/technical-drawing-with-engineering-graphics

Supplementary References:
• Engineering Design Graphics with Solidworks 2015, 1/e by Bethune, Prentice Hall, ISBN-10: 0132740508
• Principles of CAD/CAM/CAE, 1/e by Lee, Prentice Hall, ISBN-10: 0201380366

Catalog Description:

ENS 209 is concerned with the basic and important principles in computer-aided drafting and design (CADD), and 3D solid modeling. Based on an understanding of engineering drawing, the course will further introduce the use of computers for 2D drafting and 3D solid modeling. Topics include engineering drawing, tolerances, computer-aided technical drafting and design, geometric models and data structures, representation and manipulation of curves and surfaces and 3D solid modeling, and assembly modeling and analysis. Engineering materials, mechanical parts and manufacturing methods.

Objective of the course:

At the conclusion of this course, you should be able to:

- Describe the design process and product life cycle,
- Describe the advantages of using computers in design process,
- Identify different technical drawings based on the projection system used,
- Sketch the different views of a given 3D component,
- Interpret drawings that include section views,
- Assign dimensions and tolerances on the views correctly (properly),
- Represent and manipulate free-form curves and surfaces,
- Understand and draw sections and cutting planes,
- Use conventional and geometric dimensions and tolerance to describe size, shape and geometric tolerances accurately on an engineering drawing,
- Model 3D objects using solid modeling techniques,
- Identify and apply dimensioning guidelines,
- Interpret a technical drawing,
- Develop assembly drawings using constraints,
- Design for Assembly and Manufacturing (Design for X),
- Work with a CAD software (Solidworks) to design an assembly and generate technical drawings of its components and assembly drawings,
- Work effectively in a team to analyse a product (assembly) to dissect and design it by using a CAD software.

Policies and Procedures:

- **Homepage:** https://sucourse.sabanciuniv.edu/plus We will be using **SUCourse+** starting from this semester which is a MOODLE based course management system. SUCourse will **NOT** be active. The outline of lecture notes, assignments, projects and other course material will be posted on **SUCourse+**.

- **Lecture Hours:** Lecture Hours will be held IN-CLASS with online support. Students are allowed to attend in-class or online via ZOOM Meeting (Hybrid Teaching). Participation policies will be announced during the first lecture hour.

- **Laboratory Hours:** Laboratory Hours will be held online via ZOOM Meetings. ZOOM Links are shared via Syllabus.

- **Recitation Hours:** Recitation Hours will be held online via ZOOM Meetings. ZOOM Links are shared via Syllabus.

- **Midterm Exams:** There will be **IN-CLASS** midterm exams (progressive) during the semester. The midterm exams will be on **November 18th** and **December 16th** from **19:40** to **22:10**. **The questions in the exams will not be same as the solved example questions.**

- **Final Exam:** Final Exam will be held as an IN-CLASS exam. It will be provided during the final exam weeks. Final exam date will be assigned and announced by the faculty.

- **Assignments:** Homework assignments will be assigned regularly. **Quizzes will be in-class during Laboratory and Lecture hours. No late submissions will be accepted!!!**

- **There will not be any extra-credit or assignments other than assigned.**

- **Missed Exams:** No excuses for missed exams will be accepted other than certified medical excuses from the campus health center or permission papers approved by the university's president. **A single comprehensive make-up exam** will be offered after or before the **final exam**.

- **Projects:** There will be a semester-project and **groups of four** will be formed to work on the projects. The details of the project will be provided in coming weeks.

- **Individual effort:** Any academic dishonesty (i.e. cheating, plagiarism...) shall be resolved according to the University's Academic Integrity Policy**. Any academic dishonesty such as cheating, plagiarism or unauthorized sharing will result in an "F" Grade in the course and/or disciplinary actions.**

- **Team effort:** Teams will periodically be asked to submit individual effort assessment. Teams having problem working together should make every effort to resolve them by themselves. If that doesn't work, contact the instructor for help.

- **Objections to grading:** If there is any objection to grading, the student must inform the instructor via an e-mail after grades are released. The students must clearly explain why he/she deserves the missed credit(s).

- **Attendance:** Formal roll may be held on an occasional basis during the Lectures. Attendance to Laboratory & Recitation hours is compulsory and final grade will be highly affected by Laboratory & Recitation Attendance. **If you do not satisfy 70% of attendance either in Laboratory or Recitation hours without any excuse, you'll get "NA". For this semester, you will FAIL the course if you miss 5 days. Laboratory Attendance will be taken by using your weekly submissions.**

- **Computer usage: You are expected and supposed to do CAD assignments, quizzes, project etc. on your own computer unless any prior approval of the instructor is given. Otherwise, you will get "0" from CAD assignments. Your laptops will be registered by your TAs during the laboratory hours.**

- **Final Exam:** If your Final Exam grade is below _25_ points, you will directly get "F".

- **Lab Final Exam:** If your Lab Final Exam grade is below _50_ points, you will directly get "F".

- **Course grade:** A weighted-average grade will be calculated, and letter grades will be assigned to the overall grades.

- **Time conflict override: If you are registered to the course by time conflict override, you are the one who is responsible of any inconvenience regarding attendance, any missed lecture content, quiz etc.**

- **Oral Exams:** If any suspicious activity is observed during online assessments, orals exam can be conducted to verify the answer of the students. Oral exams will not be applied for in-class exams.

Grade Distribution for the course is revised as follows:

Assignments + Quizzes	10%
Midterm Exams (Online)	20% x 2
Project	15%
Final Exam (Online)	35%
Lab Final Exam	0% **(Pass/Fail)**
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Total	100%

Tentative Schedule

Week	Topic	Week	Topic
1	Introduction, Product development	8	Dimensioning and Tolerancing
2	Layouts, Technical Sketching	9	Geometric Dimensioning and Tolerancing (GD&T)
3	Geometric construction, Projections	10	Assembly Modeling (Assembly Mates)
4	Representation and manipulation of curves and surfaces	11	Assembly Modeling (Mechanical Parts)
5	Solid modeling	12	Design for Assembly, Manufacturing etc.
6	2D representations	13	Engineering Materials
7	Sections, Auxiliary views	14	Manufacturing Methods