

E 25 – Visualization for Design, Spring 2018 (2 units)

Development of 3-dimensional visualization skills for engineering design. Sketching as a tool for design communication. Presentation of 3-dimensional geometry with 2-dimensional engineering drawings. This course will introduce the use of 2-dimensional CAD as a major graphical analysis and design tool.

General Info

Professor Hannah Stuart (hstuart@berkeley.edu)

5138 Etcheverry Hall

Office Hours: W 4:30-6, or by appointment

GSI: Alan Zhang (alanzhang89@berkeley.edu)

Office Hours: Th 2-4, 1171 Etcheverry Hall

Conrad Holda (conradholda@berkeley.edu)

Office Hours: M 4-6, T 5-7, 1171 Etcheverry Hall

Lectures: W 3-4, Birge 50

Exams: Midterm Exam: Friday, 2 March 2018, 7:00 – 9:00 PM
Final Exam Group 12: Wednesday, 9 May 2018, 7:00 – 10:00 PM

Laboratory: Section 101, Fr 3-5, Jacobs Hall 10
Section 102, Th 4-6, Jacobs Hall 10
Section 103, Tu 3-5, Jacobs Hall 10

Availability for lectures, laboratories, and all examinations is required for enrollment in the class. Please see the professor for accommodation of religious beliefs, disabilities, and other special circumstances before the end of the second week of classes for any foreseeable issues. No make-up exams will be available.

We will be using bCourses for the course website, <https://bcourses.berkeley.edu/>. Use your CalNet ID and password to login. If you are concurrent enrollment, the GSI can give you access during the first lab if you have a Calnet ID.

Required Course Materials

Textbook: Lieu, D.K., and Sorby, S.A., Visualization, Modeling, and Graphics for Engineering Design, 2nd Edition, Cengage Publishers, 2016. ISBN-13: 978-1285172958.

Equipment:

An i-clicker or i-clicker+ transmitter; register it on bcourses (not the i-clicker site)

Software: AutoCAD 2018 student edition software. It is available in the CAD labs or may be downloaded with your UCB account.

Scoring:

25% Homework
5% Lab attendance & clicker quizzes (2.5% lab, 2.5% lecture)
30% Midterm Examination #1 (2 hrs.)
40% Final Examination (3 hrs.)

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Homework sets will be assigned after lecture (on bcourses) and will be due at **1:30pm the next Wednesday. Homework must be turned in to the locked box located on the 1st floor of Etcheverry Hall (labeled for this course).** Homework will **not** be accepted in lecture. Computer files for all CAD homework problems must also be submitted electronically by the due date and time. Homework can be submitted for 50% credit up to one week late, after which it will not be accepted. All students will automatically be given one "free" homework (the lowest homework score will be dropped). All problems must be submitted together at one time.

Academic Honesty and Integrity:

The student community at UC Berkeley has adopted the following Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." For homework assignments in this class, you are allowed (and encouraged!) to *discuss* the problems and techniques with other students currently in this course, but each student must do his or her own version of the CAD solution *from scratch* on the computer and/or write up their own solution for written problems. **Never give a classmate a copy of your computer files, and never have someone else's computer file in your possession.** Turning in someone else's work as your own (or letting someone else turn in your work as their own), will be treated as cheating, and will result in a grade of zero on the assignment for all students involved. Because responding to in-class questions with the clicker is worth course credit, responding for another student will be treated as cheating, and both students will lose class participation credit for the course. Cheating on a midterm or final exam may result in a failing grade for the entire course. In all cases, your actions will also be reported to the Center for Student Conduct for administrative review.

No headphones in lab or lecture. No cellphone, computer, etc. use during lecture or discussion portion of lab. Cell phones may be left on vibrate for special circumstances. If you expect an important phone call, please inform the instructor before class and quietly excuse yourself when you receive it.

Laboratory:

Lab will begin the first week of class. At the beginning of each lab, activities will include a short review of the current week's lecture material, useful hints for homework and CAD work, and tutorials and other lab activities. Attendance is mandatory and will be checked by submission of lab exercises. The CAD workstations in rooms 10 Jacobs Hall and 1171 Etcheverry Hall are provided for student use, except when another class is in session. All students are responsible for backing up their own data, so store to a USB memory stick as often as necessary. It is recommended that students use their own computers and software for doing their homework. The software used for this course is AutoCAD 2018, which is available at no cost for students. Instructions for downloading the software will be given during lab.

Students enrolled in the class can obtain card key activation to access the labs and the building after hours with the proximity card key feature of their student ID. Card key activation may be obtained from <https://www.me.berkeley.edu/accounttool/> for a \$10 activation fee (through CARS) if you are an ME student. Otherwise you can get card key access with \$10 check or money order to UC Regents, from room 6161 Etcheverry. If problems are encountered with a machine in the Lab, place a note under the keyboard describing the problem, and move to another machine. Keep the room secure; do not allow unauthorized access. Please notify the instructors or campus security of any suspicious persons or events in, or near, the labs. Theft of computer equipment and personal property has been a problem in the past. **DO NOT BLOCK OPEN THE DOORS. Accounts subject to termination for policy violations.**

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WEEKLY AGENDA:

Week	Dates	Topic	Reading (Lieu & Sorby)
1	1/17	Intro, Mental visualization	Chapter 2, 3
2	1/24	Orthographic multiview drawings	Chapter 3, 8
3	1/31	Multiview interpretations and projection angles	Chapter 8, 17
4	2/7	Orthographic projection principles	Chapter 17
5	2/14	Pictorials	Chapter 9
6	2/21	Auxiliary views	Chapter 11
7	2/28	2D CAD, Midterm Review	Chapter 11
	3/2	Midterm Exam (7:00 - 9:00 PM, 159 Mulford Hall)	
8	3/7	Dimensioning	Chapter 12
9	3/14	Section views	Chapter 10, 12
10	3/21	Section views	Chapter 10
11	4/4	Parametric relationships	Chapter 4, 5
12	4/11	Engineering drawings	Chapter 14
13	4/18	Engineering drawings, Fasteners	Chapter 14
14	4/25	Summary	catch up on reading
	5/9	Final Exam (7:00 – 10:00 PM, Birge 50)	

* Notes:

19 February is an academic holiday. 26-30 March is Spring Break. No Lecture, Labs, or Office Hours.

Chapter 17 is not printed in the 2nd version of the textbook. It will be made available on bcourses.berkeley.edu