E 25 – Visualization and Graphics for Design, Fall Semester 2019

Instructor Prof. D.K. Lieu (dlieu@me.berkeley.edu)
5128 Etcheverry Hall, 642-4014
Office Hours: MW 10 – 12

Description:

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 on computer workstations as a major graphical analysis and design tool. 2 units.

Lectures: Tu 4-5, 10 Evans Hall

Laboratory: Section 101, W 10 AM – 12 PM, 10 Jacobs Hall
Section 102, W 3 – 5 PM, 10 Jacobs Hall
Section 103, Th 10 AM - 12 PM, 10 Jacobs Hall
Section 104, F 10 AM -12 PM, 10 Jacobs Hall

GSI: Alan Zhang (aszhang@berkeley.edu)
Office Hours: TBA
2nd GSI TBA
Office Hours: TBA

Textbooks:

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

A variety of good manuals on AutoCAD are available from amazon.com and the many bookstores around campus, and may be used as reference material for those with little or no CAD experience.

Organization:

14 weeks of lecture. Homework will be assigned weekly in lecture will be due in class before lecture begins the following week. The midterm examination is scheduled for the evening (7:00 – 9:00 PM) of Friday, 18 October. The Final Exam will be held on Friday, 20 December, 7:00 -10:00 PM. Availability for lectures, laboratories, and all examinations is required for enrollment in the class.

Laboratory:

The purpose of the laboratory is to provide a forum where students can receive assistance with lecture and homework material from the instructors and other students. At the beginning of each lab session, the GSI will usually present a short review of the week's lecture material, and provide useful hints for the homework assignment that week. The GSI will also provide a series of exercises to be done during the lab period. Attendance of the lab is mandatory and will be checked by submission of the lab exercises.

The labs are locked after 6:00 PM and on the weekends and the building is locked at 7:00 PM and on weekends; however, students enrolled in the class can obtain card key activation to access the labs and the building after hours with their student ID (Cal1) cards. 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 during key hours (9 AM to 11 AM Tu-Fri).

The CAD workstations in rooms 10 Jacobs Hall and 1171 Etcheverry Hall are provided for student use in this, and other courses, except when a class is in session. The student stations in each laboratory are networked to a printer and a fileserver, where personal files (up to 1 Gb) may be stored. Each student can use their CalNet ID (student ID) and passphrase to logon to the computers Only students who are on the official class list AND have their card key activated will be allowed to login. There will be a grace period of three weeks from the start of the semester before students without cardkeys activation will be denied access. Sometimes actual activation gets delayed, but as long as you have signed up for activation your computer account will remain active. Each student should obtain a USB drive for file transfer and back-up. Many homework assignments will require the use of a computer. It is recommended that students use their own computers and software for doing their homework outside the laboratory. The software used for this course is AutoCAD 2020, which is available at no cost for students. Instructions for downloading the software will be given during Lab.

If problems are encountered with a machine in the Lab, place a note under the keyboard describing the problem, and move to another machine; otherwise the instructors will not know that a machine is down. 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 labs in the past. DO NOT BLOCK OPEN THE DOORS.
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Scoring: 25% Homework
5% Attendance
30% Midterm Examination (2 hrs.)
40% Final Examination (3 hrs.)

WEEKLY AGENDA:

Week	Dates	Topic	Reading
1	9/3	Introduction to graphics and design	Lieu & Sorby Chapter 1
2	9/10	Sketching and visualization	Lieu & Sorby Chapter 2
3	9/17	Coded plans, rotation exercises	Lieu & Sorby Chapter 3
4	9/24	Cutting and reflection exercises	Lieu & Sorby Chapter 3
5	10/1	Orthogonal projection and standard views	Lieu & Sorby Chapter 8
6	10/8	Pictorial views from orthogonal views	Lieu & Sorby Chapter 9, 17
7	10/15	Midterm Exam (18 Oct)	
8	10/22	2D CAD drawing	Lab notes
9	10/29	Dimensioning	Lieu & Sorby, Chapter 12
10	11/5	Section views	Lieu & Sorby Chapter 10
11	11/12	Auxiliary views	Lieu & Sorby Chapter 11
12	11/19	Parametric drawing	Lieu & Sorby Chapter 5
13	11/26*	Engineering drawings	Lieu & Sorby Chapter 14
14	12/3	Fasteners	Lieu & Sorby Chapter 18

Final Exam on Friday, 20 December, 7:00 – 10:00 PM (Exam Group 20)

* Notes: 2 September is an academic holiday (Labor Day)
11 November is an academic holiday (Veterans' Day)
27 November is a non-instruction day
28, 29 November are academic holidays (Thanksgiving)