E 25 – Visualization and Graphics for Design, Fall Semester 2014

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Office Hours: MW 10 – 12

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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. A group design project is required. Teamwork and effective communication are emphasized. 2 units.

Lectures: M 1-2, 277 Cory Hall
Exam Group 6: Tuesday, 16 December 2014, 11:30-2:30 PM

Laboratory: Section 001 Tu 9-11, 1171 Etcheverry Hall
Section 002 W 9-11, 1171 Etcheverry Hall
Section 003 Th 9-11, 1171 Etcheverry Hall
Section 004 Th 12:30-2:30, 2107 Etcheverry Hall

GSI's: Miho Kitagawa, Kristyn Kadala, John Madura
GSI Office Hours: TBA

Textbooks:

Lieu, D.K., and Sorby, S.A., Visualization, Modeling, and Graphics for Engineering Design, Cengage Publishers, 2009. ISBN: 978-1-4018-4249-9. ***Required.***

Camba, J., Otey, J., Contero, M., Alcaniz, M., Visualization & Engineering Design Graphics with Augmented Reality, SDC Publishers, 2014. ISBN: 978-1-58503-905-0. ***Recommended***

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. Open laboratories. One group design project. The midterm examination is scheduled for the evening (7:00 – 9:00 PM) of Friday, 17 October. The Final Exam will be held on Tuesday, 16 December 2014, 11:30-2:30 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 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 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 during key hours (9 AM to 11 AM Tu-Fri).

The CAD workstations in rooms 1171 and 2107 Etcheverry Hall are provided for student use in this, and other courses, except when a class is in session. The 40 student stations in each laboratory (80 stations total) are networked to a printer and a fileserver, where personal files (up to 500 Mb) may be stored. Each student can use their CalNet ID (student ID) and their 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 and the project will require the use of a computer. It is recommended that students use their own computers and software for doing their homework and project outside the laboratory. The software used for this course is AutoCAD, 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: 20% Homework
20% Project
25% Midterm Examination #1 (2 hrs.)
35% Final Examination (3 hrs.)

WEEKLY AGENDA:

Week	Dates	Topic	Reading
1	9/1*	Introduction to graphics and design	Lieu & Sorby Chapter 1
2	9/8	Sketching and visualization	Lieu & Sorby Chapter 2
3	9/15	Coded plans, rotation exercises	Lieu & Sorby Chapter 3
4	9/22	Cutting and reflection exercises	Lieu & Sorby Chapter 3, con't
5	9/29	Orthogonal projection and standard views	Lieu & Sorby Chapter 10
6	10/6	Pictorial views from orthogonal views	Lieu & Sorby Chapter 11, 12
7	10/13	2D CAD drawing	Lab notes
8	10/20	Dimensioning	Lieu & Sorby, Chapter 15
9	10/27	Section views	Lieu & Sorby Chapter 13
10	11/3	Auxiliary views	Lieu & Sorby Chapter 14
11	11/10*	Parametric drawing	Lieu & Sorby Chapter 6
12	11/17	Engineering drawings	Lieu & Sorby Chapter 18
13	11/24	Engineering drawings	Lieu & Sorby Chapter 18, con't
14	12/1	Visualization from engineering drawings	Lieu & Sorby Chapter 18, con't

Project drawings due Monday, 8 December, 5:00 PM. Final Exam on Tuesday, 16 December 2014, 11:30-2:30 PM

* Notes: 1 September is an academic holiday. No Lecture, but Labs will meet.
11 November is an academic holiday. Tuesday Lab will meet on Wednesday or Thursday.
27-28 November is the Thanksgiving holiday. Lecture will meet on Monday as usual, but no Labs.