

ME 210 – ENGINEERING DESIGN GRAPHICS

CIVIL

Fall 2009

Name: _____ Unique#: _____ Desk#: _____
Lecture/Manual Lab Day: _____ Time: _____ Room: _____
Computer Lab Day: _____ Time: _____ Room: _____
Instructor: _____ Office: _____ Days/Hours: _____

ME 210 Course Objectives:

To instruct students on modern graphics and modeling fundamentals for engineering design. Students will become proficient in freehand sketching, geometric modeling, and its application to computer-aided drafting and design (CADD). They will learn graphic geometry, projection theory, visualization methods, pictorial sketching, geometric (solid) modeling techniques, documentation practices, and data reporting. They will also become familiar with the application of geometric modeling to engineering design analysis, manufacturing, and construction. The course will include an introduction to the modern engineering design graphics process through a team project resulting in the creation of 3D rapid prototype models.

Textbook:

D. K. Lieu & S Sorby, VISUALIZATION MODELING AND GRAPHICS FOR ENGINEERING DESIGN, Delmar Cengage Learning, 2009.

Workbook:

Barr, et al, ENGINEERING DESIGN GRAPHICS SKETCHING WORKBOOK, 5th Edition. Schroff Development Corporation, Mission, Kansas.

Shih, Randy: AutoCAD 2007 TUTORIAL – First Level: 2D Fundamentals. Schroff Development Corporation, Mission, Kansas.

Shih, Randy: PARAMETRIC MODELING With Inventor 11 Schroff Development Corporation, Mission, Kansas.

Equipment:

See separate list.

Time Required- ME 210:

On a weekly basis there will be 2 hours of lecture and manual sketching lab, 3 hours of CADD lab, and 3 hours of sketching and reading to be done at home. The time for work at home is estimated for an average student; some may need less time and some may need more time.

Absences:

Only absences due to a good reason and supported by a written statement from your physician, minister, or clerk of court are excused absences. The statement should include the writer's name, function and phone. A student with an excused absence will get full attention and help to make up the missed work. Each unexcused absence will reduce the final grade by 1%. Coming to the class late or leaving the room early will as a rule count as an absence.

Sheet Deadlines:

Your instructor will assign specific deadlines when manual sheets are due. CADD sheets are due at the end of that CADD Lab. Late sheets will be excused under the same conditions as absences. Unexcused late sheets will get a grade reduced 20% if one period late, and no credit if more than one period late. Excused late sheets should be made up outside of regularly scheduled time, so that the current work can be kept up.

Class Conduct:

- No food or beverages in the labs or classrooms at any time.
- Please remember to practice courtesy in the classroom.
- You may leave the room temporarily without permission, but you are responsible for any announcements, etc., that may take place while you were out.

Miscellaneous:

- Found materials should be turned in to the Engineering and Computer Graphics Office, ETC 3.104.
- Put your name on all your textbooks, notebooks, equipment, etc. Your telephone number in textbooks would allow us to notify you if they are turned in to our office. If you lose or leave any book or piece of equipment in a classroom, check in the Engineering and Computer Graphics Office, ETC 3.104.
- The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD or the College of Engineering Director of Students with Disabilities at 471-4382.

- All quiz and final exam papers should be returned to instructor before leaving classroom. Taking them out of the classroom or leaving them unattended in the classroom will be considered as scholastic dishonesty resulting in an F-grade for the course.
- See General Information Catalog for rules on SCHOLASTIC DISHONESTY.

Goals:

This course is a combination of lectures, projects and graphics instruction to help prepare you for your career as an engineering student and a professional engineer. A design graphics team project will be assigned and will require integrating various aspects of the course into a final team project.

Knowledge, Abilities, and Skills Students Should Have Before Entering This Course: Mathematics at the level of Elementary Functions and Coordinate Geometry (M 305G)

Knowledge, Abilities, and Skills Students Should Gain From This Course: Introductory knowledge of Mechanical Engineering professional practices. Graphical communication skills including sketching and computer modeling. Team work, ethics, student work habits, and technical reporting skills.

Impact on Subsequent Courses in Curriculum: Lays foundation for subsequent design courses in Kinematics (ME324), Machine Elements (ME338), and Design Methodology (ME366J).

ABET EC2000 PROGRAM OUTCOMES ACHIEVED:

This course contributes to the following ME Program Outcomes (√).

Outcome		Outcome	
1. Knowledge of and ability to apply engineering and science fundamentals to real problems.		6. Ability to communicate in written, oral and graphical forms.	√
2. Ability to formulate and solve open-ended problems.		7. Ability to work in teams and apply interpersonal skills in engineering contexts.	√
3. Ability to design mechanical components, systems, and processes.		8. Ability and desire to lay a foundation for continued learning beyond the baccalaureate degree.	√
4. Ability to set up and conduct experiments, and to present the results in a professional manner.		9. Awareness of professional issues in engineering practice, including ethical responsibility, safety, the creative enterprise, and loyalty and commitment to the profession.	√
5. Ability to use modern computer tools in mechanical engineering.	√	10. Awareness of contemporary issues in engineering practice, including economic, social, political, and environmental issues and global impact.	

ASME PROGRAM CRITERIA OUTCOMES ACHIEVED (√):

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b. The ability to apply advanced mathematics through multivariate calculus and differential equations.	
c. Familiarity with statistics and linear algebra.	
d. Ability to work professionally in both the thermal and mechanical systems areas including the design and realization of such systems.	

Professionalism Topics:

1. Professional Communication
2. Teamwork
3. Professional Ethics

Computer Usage:

- AutoCAD 2010 and
- Inventor 2009 software

Design Assignments:

Integrated Reverse Engineering and Design Graphics Project

Laboratory Projects:

Ten Individual CAD Laboratory Assignments

Instituted College Policy

- "An undergraduate in the College of Engineering may not enroll in any course required in his or her engineering degree plan more than once without written consent of an advisor in his or her department."
- "If you fail to secure written consent to repeat a course and are enrolled in the course, your registration may be deleted."
- "If you are denied approval to repeat a required course, you will be placed in the undeclared major code and must consider other degree options."