Fall 9-1-2016

EGEN 101.01: Introduction to Engineering Calculations and Problem Solving

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E-Gen 101 - Introduction to Engineering Calculations and Problem Solving

Fall 2016 – The University of Montana

Lecture, Mon and Wed *10:00 – 10:50 AM, Clapp 335*

Lab, Mon *3:00 – 4:50 PM, Clapp 335*

Professor:

Aaron Thomas
Office hours: Chem 201, Mon. 1-2 PM, Wed. 11-12 AM, Thurs. 9-10 AM & by appointment
Email: aaron.thomas@umontana.edu
Phone: 406.243.2052

Course Prerequisites:

College level algebra

Course Texts:

*Introduction to Engineering (*2012), Pearson Custom Publishing, ISBN 1-256-55475-8

Beginning AutoCAD 2014 by Cheryl R. Shrock, Industrial Press, NY, ISBN 0-831-13456-9

Online Course Resources:

All in-class handouts and links to outside resources will be posted on the EGEN 101 course page available through the UM Moodle page for the class. The UM Moodle course page will also be used for electronic quizzes and for electronic submittal of course assignments. Course grades and some feedback on most assignments will also be made available through Moodle. Students should check for grades and feedback regularly, so as not to be surprised by your standing in the course.

Required Equipment:

- USB Memory Stick or Flash drive
- Engineering paper (yellow w/ green grid on reverse side)
- Mechanical pencil(s) and straight edge for sketching

Learning Objectives:

This course will introduce students to the engineering profession, and to the major disciplines within the profession. Students will begin to assemble a "toolbox" of skills that will support them during their pursuit of a career in engineering. Specific objectives include:

- Design – Students will understand the steps in the engineering design process, and will have the opportunity to put this understanding into practice through several hands-on design projects.
- Engineering Analysis – Students will improve their skills at framing and solving engineering analysis problems, including understanding Dimensional Analysis and using Microsoft Excel.
- Computer-Aided Drafting – Students will master basic drawing skills in AutoCAD and will utilize these skills in a realistic design scenario.
- Communicating Clearly – Students will practice communicating technical ideas to technical and non-technical audiences, both orally in class and in written assignments. Students will also be able to articulate and apply the principles of Engineering Ethics.

Course Grades:
Course grades will be broken down generally in accordance with the stated learning objectives:

Assignment	Percent of Grade
Design Projects- Introductory conceptual design project	10%
Design Projects- Cardboard chair project	25%
Design Projects- CAD design project	5%
SUBTOTAL:	**40%**
Engineering Analysis Problems	10%
AutoCAD Exercises	30%
Written Assignments	10%
In-class Quizzes and Class Participation	10%
Total:	**100%**

Expectations:
Students are expected to attend all lecture and lab sessions, and to arrive on time prepared to work. Students will treat the instructor and each other with respect at all times.

Lectures will not always be lectures, but may include in-class assignments, discussions, guest speakers or quizzes. Come to lecture prepared with your Pearson textbook, flash drive, note-taking materials, past handouts and work in progress.

Lab sessions will be primarily devoted to AutoCAD activities. Bring the Shrock book and your flash drive to all labs. Assignments are expected to be turned in by the date and time they are due. Hard-copy assignments will generally be collected at the start of lecture or lab, but may be turned in to my mailbox in the Chemistry Department, or handed to me in person during office hours. Electronic files should be turned in through Moodle.

Work Outside of Class:
This class includes reading assignments and a variety of homework assignments to complete design projects and practice skills discussed in class. For every hour spent in class or lab, you should be prepared to spend two hours working outside of class.

Students are strongly encouraged to engage the services of the Writing Center in LA 144 for assistance in improving written assignments for this class.

Students struggling with mathematics are encouraged to seek help from available on-campus tutoring programs. I am also happy to assist students with mathematics during my office hours.

Computers in the Clapp Building 335 are equipped with the software you will need for this class. The lab access code is available upon request to all students in this lab, to allow you free use of the computers at any time the building is open. Alternatively, a free, educational version of AutoCAD is available for download to a personal PC or laptop. This information will be shared in class or upon request.

Penalties:
Credit for missed in-class activities may not be recoverable if the absence was not excused. Students may miss one lab session with no penalties, provided the work from that session is completed. More than one unexcused missed lab will cause one's final grade to be reduced by two points per lab missed.

Unless excused by me, all late assignments will receive reduced credit. Late assignments turned in within 24 hours of when they were due will receive a 10% reduction, with an additional 10% reduction for each additional day late up to 30%. Assignments that are more than three days late will generally be accepted with a 30% reduction.

Emergencies and Excused Absences:
If extenuating circumstances prevent you from attending lecture or lab or from turning in an assignment, you must make every effort to contact me BEFOREHAND. At that time, I may be able to excuse your absence or late assignment for reasons of illness, injury, family emergency or a University-sponsored activity. Alternative due dates will be agreed upon as part of that conversation.

Disability Services for Students:
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

University Policies:
You are expected to be familiar with and to follow University policies. Specifically, students are expected to practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the University Student Conduct Code. It can be easily found by Googling "U Montana Student Conduct Code", or at http://life.umt.edu/vpsa/documents/StudentConductCode1.pdf.