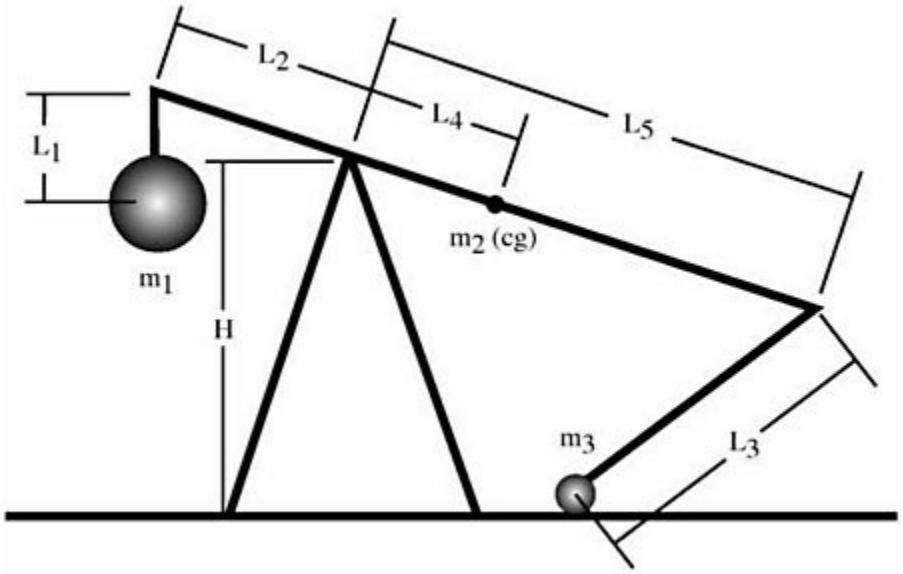
Engin 103 January 27, 2009 back to e-syllabus	Topics: General introduction Forms Project 0 -Engineering Fields Logbook questions

General Engineering Introduction

What is Engineering?

Problem solving
Teamwork
Research
Building/Devices, gadgets
Measurements/Testing/Analysis/Data modeling and prediction
Design/Diagrams/Schematics/How things work
Use of computer/Software
Machinery/tools/equipments
Funding
Branches: manufacturing, industrial, civil, electrical….

Engineers utilize general knowledge discovered by scientists to build concrete devices that achieve certain goals. An example of engineering design is this simple trebuchet applying the principles of mechanics, more specifically the force of gravity, Newton's laws, and conservation of energy. Ignoring friction, when the heavy weight m_1 is lowered, it releases gravitational potential energy that converts into the kinetic energy of the lighter weight m_2 being launched forward (towards the left in this figure).



As another example of engineering design, let's examine the question whether a camera base should be detachable or permanently attached to a tripod.

Permanently attached base or detachable camera base (the camera base is normally a square or rectangular piece of plastic about 1 in. each side, with a screw to connect the camera to the tripod)

Permanently attached	detachable
Cheaper More stability Easier to handle Harder to loose	Can change sizes Easier to ship Easier to repair Leave it on camera (less wear and tear)

Better and recent tripods have permanently attached camera base. The advantages of stability, easy handling, and harder to loose outweigh those for easy shipping (the piece is very small anyway), easy repair (it hardly breaks), and camera wear and tear. Bases of different sizes are not profitable since there are no regulations on the size of the plastic base. However the screw size is standard and camera manufactures comply pretty well. This is an example of engineering oriented towards the human operator (easy handling or ergonomic) and its habits (it is easy to misplace a small piece of plastic, once it is lost, the tripod is worthless).

General Course Introduction

Methodology: active learning

Active learning: research for information; hands-on activities;

Attendance: is required
Projects: 4 projects (0, 1, 2, 3). Leader for at least one project (submit project report, progress report, files, upload project web page)
Office hours: Mondays (1-3pm), Wednesdays (9-11am) in S-3-126

Course components:
Teamwork/4 projects (60%);
Logbook and final exam (15%+5%)
Homework and classwork (15% + 5%)

Required materials:
Quadrille notebook;
LabVIEW 8.0 student edition with CD
USB flash drive;
Active email account;

Visit course webpage at http://www.faculty.umb.edu/tomas_materdey/103s09 and e-syllabus for announcements, policies, class notes, activities, assignments, due dates, reading assignments.

-Teams: members will rotate to lead the team, members should report to their team leader for attendance and progress. The leader will coordinate the team for the assigned project, and will submit the team report, and upload the team webpage for that project.
-Projects: there will be four projects: 0, 1, 2, 3. Each project will be assigned in a link posted on the e-syllabus, the project specifications include what to accomplish in each of the two parts of the project, and what to include in the project report to submit after the presentations. The project due dates are posted on the e-syllabus, presentation dates, and when the report (hard and soft copies) and webpage should be submitted/uploaded.
-Logbook: each student will keep an individual logbook, number the pages and date the entries. Keep notes on work related to the course: things learned in class, work done in projects. Also answer questions posted at the end of the class notes. There will be approximately 50 questions during the semester. See example of a logbook page here **example of a logbook page.** The quadrille notebook will ease the making of sketches to scale. The logbook will be graded three times, approximately once a month, and will be required to take the final exam. Logbook and final exam counts 20% (15% +5%) toward the course grade.
-Homework and Classwork: there will be 6 homeworks, and about 12 classworks. Classworks will be turned in at the end of the class. Classworks and homeworks count 5%, and 15%, respectively toward the course grade. Homeworks are individual. Those students who share a computer will submit a common classwork with their names within the files.

back

Forms

Each student should review, sign and turn in the following two forms:

1) '**Class Information and Computer Access Agreement**' (CICAA). The

computer number in this form should match the computer number located in the upper right corner of your workstation monitor. You are sharing a computer with other students listed in this form. This form contains the password to access the computer which you should use to login. There is one CICAA form per computer. Please sign and return it to the TA.

2) '**Team Leader Information and Web Server Access Agreement**' (TWSAA). This form contains login information to upload files and web pages to the server. It also contains a table where team members should enter their names and after consulting with their team, a number between 0 and 4 to indicate which project(s) they will be a leader or co-leader for. There is one form per team. Please sign and return it to the TA.

back

Project 0 –Engineering Fields

Each team is assigned an engineering field, see link to Project 0 in the e-syllabus. Project 0 Part I consists of a five minute oral presentation by the team on the assigned engineering field. Accompanying visual aids such as a PowerPoint presentation are recommended. Grading criteria are listed in the link to Project 0 in the e-syllabus. Project 0 Part II consists of a five-minute presentation of a project engineers in your field actually work on. You should discuss topics such as goals, timelines, budgets, human resources, all with justification whenever possible. Use of sketches and flow charts will add to the presentation. Grading criteria are listed in the link to Project 0. One of them will be the number of questions your team gets from the audience. Due dates are listed in the e-syllabus.

For Project 0, each student is required to submit an Individual Report, in which you discuss what your have learned while doing this Project with your team, in Part I and Part II. In addition the team leader will submit a Team Report, which is a summary of what the team has learned after watching the other 9 presentations in Part I AND part II. Grading criteria for the reports are listed in the link to Project 0. Due dates are listed in the e-syllabus. The team report will include the following table:

Team leaders: please fill out the cover sheet below, and submit it along with the Team Report for Project 0

Engin 103 Project # 0 Report for team # ____ Submitted by _____ (team leader) Today's date is _____
Team members: please reply to your team leader' s e-mail or voice-mail messages regarding meeting scheduling, work distribution, and progress. Team members will report to their leaders on work related to the assigned project. Team leader: Please comment on these teamwork elements: communication, organization, and participation while you and your team were completing Project 0. In one paragraph, make a self-evaluation for your team as compared to other teams in the class. Describe any recommendation you would like to make for your team and the leader for Project 1.

Members	Signatures
Leader:	
Member:	
Member:	
Member:	
Member:	

back

LOGBOOK: example of a logbook page

-Use a quadrille notebook; number all pages; date all entries
-Write your notes for all activities, thoughts, problems and solutions, and learning conclusions related to Engin 103. You should write down progress, outcomes, and conclusions on projects and teamwork; conclusions from class work (including LabVIEW) and homework
-In addition you should answer in the logbook all questions listed in these notes in blue, as shown below:

No questions for the first meeting

back