

ENES 100 Introduction to Engineering Design
Fall 2008, Section 0601
Syllabus

Instructor: Prof. **Bruce Jacob**
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& By appointment

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Sun..... 5:00pm- 6:00pm

Textbook: Dally, J.W., et.al. Introduction to Engineering Design. Book 9, Third Edition: Engineering Skills and Hovercraft Missions. College House Enterprises, 2008.

Class Schedule: **TuTh.....12:00pm- 1:50pm (JMP 1116/1120)**
F..... 1:00pm- 1:50pm (EGR 1202)

Website: <http://bb.eng.umd.edu>

COURSE OBJECTIVES

This course provides the new engineering student with the answer to one very basic question: What does it mean to be an engineer? This question is answered in this course (and in later courses throughout your curriculum) by focusing on six fundamental engineering topics:

1. *Teamwork and group dynamics*
2. *Communication skills – drawing, writing, speaking*
3. *Computer applications*
4. *Scientific and technical principles*
5. *Analysis of experimental data*
6. *Ethics*

This course introduces students to the engineering experience through the planning, investigation, design, manufacturing, assembly and evaluation of a product. These functions are achieved within the context of a team setting. You will be assigned to a team, and each team will be required to prepare reports and presentations on a product design, to build a working prototype of the product, and to summarize the design process and product performance. You will also be responsible for evaluating your performance and that of your teammates. Working successfully in teams and developing an understanding of group dynamics are important course objectives. During the course of the semester you will also learn some basic science and engineering principles and their application to the project at hand. You will develop your

computer skills, including use of the Internet and library databases for research, and use of basic spreadsheet, word processor and graphical presentation software to assist in product design and development. Additional objectives include learning about the role engineers play in our modern society and engineering ethics. Finally, throughout the course, there will be opportunities to develop and improve your communication skills, including oral, written and visual (engineering drawing) modalities.

GRADING POLICY

Team Grades

Product design, development and performance	
Milestone #4	4%
Milestone #5	6%
Final product performance	5%
Project Development Plan Presentation	5%
Preliminary Design Report	
Written	10%
Oral	5%
Final Design Report	
Written	10%
Oral	5%
Subtotal	50%

Individual Grades

Individual Contribution to Team / Attendance	15%
Homework/Quizzes	15%
Midterm Exam	20%
Subtotal	50%

Please note that the grading in this course will be based on relative performance. Therefore the widely held belief that there is a default grading scale such that an average of 90.0% equals an “A,” between 80.0% and 90.0% equals a “B,” etc. does not apply to the grading of this course.

Academic Integrity

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: “I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment).”

Attendance

Regular attendance is expected. Class sessions will be used for lectures, demonstrations, team meetings, and team building activities. If you miss class you are responsible for any of the information covered that day.

Exams

Exams and quizzes will be held during the regular lecture time. In the event the University dismisses classes on a day in which an exam is scheduled, then the exam will be given on the very next class meeting. Any requests for re-grading must be submitted in writing in a timely manner.

Homework

Homework assignments are due at the beginning of the class period on the due date. It is recommended that homework be typed using a word processing software. Homework that is illegible will not be graded. Late homework will not be accepted, except in the case of unusual circumstances with submission of sufficient documentary evidence. Under no circumstance will late homework be accepted unless given pre-approval.

How to maximize your grade:

- a. Define all variables. State all assumptions.
- b. Annotate all solutions to allow your thinking process to be clear. If your approach cannot be followed, no partial credit will be given.
- c. Clearly delineate the start and end of each problem.
- d. Include units in all final answers.
- e. Discussions must be composed of complete sentences.

Team Logs

After you form your teams, each team will be required to keep a record of their meetings. This record can either be in the form of a notebook or a web based log (blog). Each log is intended to document the team’s experience. Logs must include the names of the team members present at each meeting, their team role, minutes from the meeting, a list of action items (including who is responsible), and an update of what action items were accomplished from previous meetings (including who did the work).

The logs will provide a record of the team’s progress on the design, manufacturing and testing of the product. This is the team’s documentation of the time and effort spent on the project. Teams must bring their logs to each class and/or update a web-based blog prior to the start of class. Logs will be collected/viewed periodically with little or no forewarning. Note: if the team

divides into subgroups, the subgroups should maintain separate notes, to be integrated into the main team log.

Peer Evaluations

No fewer than two peer evaluations will be given during the semester. The peer evaluation forms will be available from the course website. The results will be summarized and/or made available to each individual student. The result of this evaluation, the recommendation of the Teaching Fellow and the Graduate Assistant, the instructor's personal discretion, and information from the team logs will be used to determine the "Individual Contribution to Team" grade.

Financial Requirements

Each student will make a financial contribution to cover the costs of the design project. The total cost for final assembly of the team project must be less than or equal to \$350 and must be shared equally among team members. In order to establish the cost of your product, each team will be asked to produce receipts for materials and services used in production of their project. Part of the cost is a \$25 laboratory fee to cover the NXT rental. The team is required to purchase the connecting cables to the NXT. If your team damages or loses the NXT, you must replace it (\$135). As a suggestion, collect fees as early as possible to minimize the chance of forfeiting income in the event of a team member dropping the course.

Assembly Room

Students must attend a safety lecture before they will be allowed to enter the assembly room. The safety lecture will be announced. Each team will be assigned to a toolbox, which will be signed in/out. You are responsible for the contents of the box. If your toolbox is returned with missing tools, your team will be charged for the replacement costs. You are responsible for cleaning up after yourself. Failure to do so will result in loss of assembly room use.

Keystone Center

The Keystone Center will be open throughout the semester on Sunday, Tuesday, and Thursday evenings from the hours of 6-10 PM in JMP 1116 (overflow in JMP 1215). This is a place where you can go to work on homework, to use the computer labs, or to study for exams. It will be staffed at all times with upper level undergraduate students that can provide assistance in answering questions in ENES 100, 102, 220, and 221, MATH 140 (and often 141, 240, 241, and 246), PHYS 161 (and often 260 and 270), and CHEM 135.

Accommodations

Religious observances: Students shall be given an opportunity whenever feasible to make up in a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the student's responsibility to inform the instructor of any intended absences for religious observances *in advance*.

Disabilities: The University has a legal obligation to provide appropriate accommodations for students with disabilities. If you have a university registered special need related to a disability, please inform the instructor *as soon as possible* to arrange accommodations.

Academic Assistance

If you are experiencing difficulties in keeping up with the demands of your classes and schedule, contact the Learning Assistance Services, 2201 Shoemaker Building, 301-314-7693, or on the web at <http://www.counseling.umd.edu/LAS/>. Their educational counselors can help with time management, reading, note taking, and exam preparation skills.

Courtesies

You can help make the classroom conducive to learning if you:

1. Arrive for class on time
2. Do not prepare to leave until the instructor indicates the lecture is over
3. Silence your cell phone