

ENGR 1113: Introduction to Engineering (distance-ed version of ENGR 1110)

Instructor: Stanley J. Reeves, Ph.D.
Office: Broun 221
Phone: 844-1821
Email: reevesj@auburn.edu
Web Page: <http://www.eng.auburn.edu/~reevesj>

Objectives:

Students will acquire an introductory grounding in graphical presentation, technical writing, professional ethics, and oral presentation. Students will be introduced to engineering design and teaming by the use of a design project as a vehicle for skill development. The emphasis of the course is on the general process of engineering design and on technical written and oral communication of design results.

Text: *Introduction to Engineering Design, Book 7: Projects, Skills and LEGO Challenges.* J. W. Dally and S. J. Reeves, College House Enterprises, Knoxville, TN, 2001.

Attendance Policy:

Class participation is required. Participation will be tracked through online quizzes with deadlines and participation in online discussions.

Grading:

Discussion Participation	15%
Labs/Homework	25%
Quizzes	25%
Prelim Design Report	5%
Final Design Report	20%
Final Design Presentation	10%

Discussion Participation

Participation in online discussion, both with one's team, and as individuals with the class as a whole, is vital to the class learning experience. Interaction will be expected on class and team forums. The professor will sometimes post questions to stimulate discussion. Remember that discussion is not a scheduled activity, so students must establish a regular pattern of checking the discussion on their own. Participating early is encouraged so that others can react to your contributions.

Labs/Homework

Homework assignments will be based on work done individually and by teams in the lab exercises. Individuals will submit their own independent homework assignment unless otherwise specified. Individual grades resulting from team projects/reports will be adjusted to reflect individual participation, as measured by peer evaluation at the end of the course. **Late submission of projects/reports/homework will not be allowed.**

All grades will be posted online within one week from the time of submission.

Any grade discrepancies (lost grades, grading errors, etc.) must be reported to Dr. Reeves via email within TWO CLASS PERIODS from time of submission of the quiz, memo, or lab report.

Course grades will be assigned based on a standard 10-point scale listed below.

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
<60	F

Professional Development Meetings/Memos

You are expected to attend **two** approved professional development presentations/meetings sometime during the term and submit a one-page memo describing what you learned for each meeting. Some examples of approved meetings are:

- Student professional society meetings (IEEE, ASME, AIChE, SWE, etc.) A list of student organizations can be found at <http://eng.auburn.edu/admin/ess/students/organizations/engorg.html>
- Guest lectures on campus announced in class
- Local engineering-related seminars and meetings
- Visit to a local engineering company
- Optional ethics lecture by Dr. Reeves near the end of the term

These memos will each be counted as a lab grade. For details on the content of the memo, see the class web site. Each memo must be turned in within seven days of the meeting being discussed. In addition, the first memo is due by **the 8th class day**. The second memo is due by the last day of class. Students whose writing reflects clear deficiencies in the first memo will be required to rewrite the memo before receiving credit and before turning in the second one.

For extra credit, you can attend additional meetings. A maximum of 1 point per memo will be added to your final grade. A maximum of 3 extra-credit memos can be submitted.

Quizzes

Quizzes will be available at the end of every online lecture, based on the reading assignment for that week and the lecture.

Academic Honesty Policy

All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to this class. At the discretion of Dr. Reeves, academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Expectations:

1. Watch and read all the core teaching material for each class. Post questions and comments.
2. Participate substantively and helpfully in online discussions about the material.
3. Complete the reading assignments. Unless you are informed otherwise, you are responsible for the material in the reading assignments even if it is not discussed in the lectures.
4. Do the homework assignments and learn from them. You should especially learn from your mistakes.

5. Exhibit professionalism and discipline in your work. Homework assignments should be *neat, legible, and clearly organized*. Answer all questions fully and in detail.
6. Take advantage of my online office hours, email contact, and forum interaction.

Software/Hardware Requirements:

All students must have access to the following:

MS Office – Writing will be done in MS Word. Lab exercises will use MS Excel. Presentations will be done in MS PowerPoint, all part of the MS Office package.

MATLAB – MATLAB is a scientific computing package with programming, plotting, and simulation capabilities. In addition, data acquisition may be a part of the lab, which would require an add-on data acquisition toolbox. MATLAB Student Version can be purchased from mathworks.com for \$99. The data acquisition toolbox is \$29. MATLAB is used throughout the engineering curriculum, so it is a good up-front investment that many if not most students purchase eventually.

free software – The AU College of Engineering will provide downloadable free software that will be used in the course and elsewhere.

Accessibility:

It is the policy of Auburn University to provide accessibility to its programs and activities, and reasonable accommodation for persons defined as having a disability under Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act of 1990.

Students who need special accommodations should make an appointment to see the instructor as soon as possible or contact the Students with Disabilities Office at (334) 844-5943 (Voice/TT).

Guidelines for Submission of Lab Homework Assignments

A format for the homework assignments will be provided in the context of the first lab.

- **Grading**
 - Homework assignments must be turned in at the due date and time to receive full credit. Any work submitted after this will NOT BE GRADED without a valid reason and an approved University excuse.
- **Determining Grades** - Your lab reports will be graded using the guidelines and scales given below.
 - **Presentation, 30%** - In general, your assignment should be neat and comprehensible. The assignment should be addressed appropriately and should contain references to the relevant lab (more details may be found in a suggested format that will be made available during the first lab period).
 - **Correctness, 70%** - The points awarded here will be determined according to the correctness of content.
- **Cheating:** Unless specifically directed to work in teams, each student is expected to turn in his/her own lab assignments. Any direct copying of someone else's work, or misrepresentation of other work as your own, will be grounds for getting zero points for that particular assignment. If this behavior is repeated, at the discretion of Dr. Reeves, the Academic Honesty Committee may also be consulted.
- **Turning in Assignments Electronically**

- The lab assignments must be turned in as PDF files. Further details will be made available online.

It is your responsibility to read email and check the course web site regularly.

Design Project Specifications:

Significance

The lectures, reading, and lab experiences should be seen as preparation and instruction for your design project. Reports, presentations, drawings, spreadsheets, and safety evaluations will all be about one device, which you will design. You will build your design. You will work in teams. At the end of the team each team member will have an opportunity to evaluate the contribution of all the other team members.

Background

The design project is to build a hydro-electric powered LEGO® car from LEGO parts. A small LEGO motor will be used as a generator and another LEGO motor as the actual drive motor.

Specifications

Details will be forthcoming.

Construction

Costs of parts and tools are regarded as a cost of education. Each team must keep records to account for construction costs and purchases as part of the final report. Since the team will be distributed geographically, each member of the team is expected to build a copy of the team design for individual testing and experimentation.

At the end of the course, all projects are regarded in the same way as written work submitted in any course at the University, with regard to ownership. The project might be retained by the University for use as an instructional example, retained for any other academic purpose, disassembled for parts recovery, or returned to the teams. However, all motors will be returned to the teams.

Reporting requirements

A preliminary design report is due at the beginning of Class 8 Lab.
The final design report is due at the beginning of Class 14 Lab.