530.101 – Freshman experiences in mechanical engineering I
530.105 – Mechanical engineering freshman laboratory I
Fall 2009

Lectures MW 1:30-2:20, Hodson 213
Laboratories scheduled by section, Wyman Park Bldg 140 & 145

Instructor
Prof. Lester K. Su
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Office hours
M 4-5, F 9-10, lunch Friday
also come by whenever my door’s open

TAs
(530.101) Betsy Congdon, econgdo2@jhu.edu, office hours TBA
Ali Uneri, ali.uneri@jhu.edu; office hours M 3-4 in the Krieger computing lab
(Krieger 160)

(530.105) Kamini Balaji, kamini@jhu.edu; Adam Sierakowski, asierak1@jhu.edu

Web page
http://imaging.me.jhu.edu/courses101.html

Texts
Petroski, H., *Invention by design*, Harvard U.P.
Both books are available at the bookstore, or online. Earlier editions of Gilat are not
hugely different from the 3rd edition, but I will assume you have the 3rd edition.

Grading
(530.101)
Homework (weekly) 25%
Midterm exam 15%
Final exam 30%
Design project 25%
Class participation 5%

(530.105)
Lab assignments 75%
Lab exams 15%
Lab participation 10%

Goals
These courses (and 530.103, Mechanics I) make up introductory ME sequence for
first-year students. 530.101 introduces the field of mechanical engineering and
prepares students for the study and practice of the field. We will discuss the breadth
of applications of mechanical engineering, emphasizing the creative nature of
engineering, and will begin to develop practical skills in the areas of design and
computing. We will also touch on aspects of the professional pursuit of engineering,
including career planning and professional ethics. The laboratory (530.105)
supplements both 530.101 and 530.103, by familiarizing students with experimental
methods and apparatus, and illustrating significant mechanical principles. The
semester culminates with a design project competition that allows students to put
their learning into practice.
Office hours. Besides the office hours posted, any time my door is open you should feel free to stop in and ask questions. Also, on Fridays anyone is welcome to join my research group and me for lunch (meet in my office at noon – we go somewhere on or near campus).

Course texts and notes. Since this class covers a wide range of material, we will not slavishly follow any text. Much of the formal material in the course relates to data analysis and Matlab computing, for which I will distribute lecture notes and use the Gilat text as a reference.

Homework. Homework will always be due at 5 pm in my office on the given date, which will generally be on Tuesdays. I don't make homework due in class because I don't like people working on homework in class. So don't work on homework in class. Also I will not accept any homework that is not stapled together, or still has the annoying notebook perforation residue attached.

Labs. Lab reports will be completed and submitted during the individual lab sections. One-time lab scheduling conflicts must be reconciled in advance with me.

Exams. Exams will be open book, open notes. My exam philosophy is that I want them to rank accurately your command of the material. This requires that my grade distributions be wide and that the average scores be relatively low. I'm not actually trying to demoralize people with hard exams.

Late work and illnesses. Any assignments turned in late will be automatically subject to 50% deductions, unless prior permission has been requested and granted. Such permission will only be given if there is an unavoidable conflict. “I didn’t realize it was due today” does not constitute an unavoidable conflict. No credit will be given for homework submitted after solutions have been posted on the website or distributed in class.

Illness will generally not be a sufficient reason for me to grant you an extension on an assignment, quiz or exam. You may wake up on the morning of an exam with the mother of all head colds, but don’t assume that I’ll excuse you - you must come to the exam regardless. Be aware that it is entirely at the instructor’s discretion whether to grant extensions for illness. In particular, it does not matter what the judgment is of a doctor or nurse at Health and Wellness.

Grading. We will strive to make the grading as transparent, consistent and fair as possible. For all written work we will distribute solutions and point distributions that make clear why we deducted any points. If you ever suspect that we’ve made a mistake on the grading, you are encouraged to appeal to whichever of us graded that particular problem. In exchange for our extreme concern for grading fairness, we expect you to conform to high standards of personal integrity. Which brings us to the matter of academic ethics....
Course philosophy – Introduction to Fluid Mechanics – Su

Academic ethics. The following is our mandatory syllabus insert on ethics.

Cheating is wrong. Cheating hurts our community by undermining academic integrity, creating mistrust, and fostering unfair competition. The university will punish cheaters with failure on an assignment, failure in a course, permanent transcript notation, suspension, and/or expulsion. Offenses may be reported to medical, law or other professional or graduate schools when a cheater applies.

Violations can include cheating on exams, plagiarism, reuse of assignments without permission, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Ignorance of these rules is not an excuse.

On every exam, you will sign the following pledge: "I agree to complete this exam without unauthorized assistance from any person, materials or device. [Signed and dated]"

For more information, see the guide on "Academic Ethics for Undergraduates" and the Ethics Board web site (http://ethics.jhu.edu).

On a more personal note, I detest cheating in any endeavor with every fiber of my being. I personally grade one problem on each assignment, so I can get an idea of how you are all doing, but it will also be very obvious to me when people are cheating. You are encouraged to work together on assignments but what you submit must be your own work. I don’t want to be put in the position of adjudicating any ethics incidents, so any time I suspect that cheating is taking place, I will first notify the Associate Dean of Students, Dorothy Sheppard (dsheppard@jhu.edu), that you are under suspicion, then we will adhere to the following procedure:

• If Dean Sheppard informs me that you have not previously been found guilty of an ethics violation at JHU (either by confessing, or in a hearing of the Undergraduate Academic Ethics Board), you have two options:

1. You can confess to a violation, in which case you will be given the standard sanction, which is a zero on the assignment in question, plus a partial-grade deduction after the course grades are computed (e.g. A to A-, or B- to C+, etc.). I will also inform Dean Sheppard that you have confessed to a violation. She will file a report of the incident and there will be no further punishment.

2. You can maintain your innocence and request that Dean Sheppard convene the Undergraduate Academic Ethics Board for a hearing on your case. This could result in your exoneration, or in a more severe punishment than the standard sanction above. Be aware that the Ethics Board can impose any punishment it chooses, including notations on your transcript, all the way up to expulsion from the University.

• If you have previously been found guilty of a violation in this class or any other, your case will automatically, by JHU policy, be referred to the Ethics Board.
I do want to make clear that I’m aware that the vast majority of students are honest, and the last thing I want to do is discourage students from working together. After all, working together on assignments is one of the most effective ways to learn, both through learning from and explaining things to others. The ethics rules are in place to ensure that the playing field is level for all students. The following examples will hopefully help explain the distinction between what constitutes acceptable cooperation and what’s not allowable.

**Student 1:** Yo, I dunno how to do problem 2 on the homework, can you clue me in?
**Student 2:** Well, to be brief, I simply applied the **** principle that is thoroughly explained in Chapter **** in the course text.
**Student 1:** Dude, thanks! (Goes off to work on problem.)
- This scenario describes an acceptable interaction. There’s nothing wrong with pointing someone in the right direction.

**Student Y:** The homework’s due in fifteen minutes and I haven’t done number 5 yet! Help me!
**Student Z:** Sure, but I don’t have time to explain it to you, so here. Don’t just copy it, though. (Hands over completed assignment.)
**Student Y:** I owe you one, man. (Goes off to copy number 5.)
- This scenario is a textbook ethics violation on the part of both students. Student Y’s offense is obvious; student Z is guilty by virtue of facilitating plagiarism, even though he/she is unaware of what student Y actually did.

**Joe Student:** Geee, I’m so swamped, I can’t possibly write up the lab report and do the lab data calculations before it’s all due.
**Jane student:** Well, since we were lab partners and collected all the data together...maybe you could just use my Excel spreadsheet with the calculations, as long as you did the write-up yourself....
**Joe Student:** Yeah, that’s a great idea!
- That is not a great idea. By turning in a lab report with Jane’s spreadsheet included, Joe is submitting something that isn’t his own work.

**Study group member I:** All right, since there’s three of us and there’s six problems on the homework, let’s each do two. I’ll do one and two and give you copies when I’m done.
**Study group member II:** Good idea, that’ll save us a lot of work. I’ll take three and five.
**Study group member III:** Then I guess I’ll do four and six. Are you guys sure this is OK? Seems fishy to me.
**Study group member I:** What’s the problem? It’s not like we’re copying the entire assignment. Two problems each is still a lot of work.
- This is clearly wrong. Copying is copying even if it’s only part of an assignment.

**Mike (just before class):** Hey, can you help me? I lost my calculator, so I’ve got all the problems worked out but I couldn’t get the numerical answers. What’s the answer for problem 1?
**Ike:** Let’s see (flips through assignment)... I got 2.16542.
**Mike:** (Writing) Two point one six five four two...what about number 2?
**Ike:** For that one... I got 16.0.
**Mike:** (Writing) Sixteen point oh...great, got it, thanks. Helping out a friend totally rules!
- Helping out a friend this way does not rule, totally or partially. As minor as this offense seems, Mike is still submitting Ike’s work as his own when Mike gets the numerical answer and copies it in this way.