Questions and Answers Vol. 5

or

"The end is nigh – Part II: The Nighening"

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OH&S status of the lab

- As you should already be aware, there were OH&S violations in the lab last week:
  - Use of untagged/untested mains equipment
  - Cables in the corridor posing a trip hazard
  - Food and drink in the lab

These posed safety and evacuation hazards, and an Incident Report was raised

This is a serious thing

- Incident Reports are no small matter
  - Reviewed by the Head of School
  - Can lead to an OH&S audit, administrative review, sanctions and more
  - Can negatively effect the university's liability insurance, self-insurance status, etc.

I am personally responsible for the

Safety and good conduct of the class

The risk

The lab is very close to being shut down

If there is any further breach or violation, the lab will be shut down until further notice

This will be a disaster for everyone

Our response

- Keith Lane and I have done the following things in response:
  - Made students aware of the problems and provided instruction on how to rectify them
  - Had all non-compliant items tagged and tested
  - Added mains power points outside, so no cables will be run from the lab to the borehole
  - Made regular inspections for compliance

What your response must be

- As professional engineers, you must start to consider safety and cleanliness of your workspace as critically important
- You must police yourselves and each other
  - The risk is too high to tolerate bad behaviour
- Report risks/concerns to me immediately

Reprise of the rules

- All mains equipment tagged and tested by ETSG – or better yet, not in the lab
- No food or drink out of your bag in the lab
- No eating, drinking, sleeping in the lab
- Lab to be kept clean at all times
- Lab doors to be kept closed
- Evacuation routes to be kept clear of obstructions and trip hazards

Going forward

- With the lab cleanliness improving, I have moved the status back to GREEN
  - Hopefully no more issues from now on

Remember: Everyone knows the rules, and it's everyone's problem if they're broken

But second…

Some house keeping

Calendar at a glance

Week	Dates	Lecture	Reviews	Demos	Assessment submissions
1	2/3 – 6/3	Introduction			
2	7/3 – 11/3	Principles of Mechatronic Systems design			Problem analysis
3	14/3 – 18/3	Professional Engineering Topics			
4	22/3 – 25/3	Your soldering is (probably) terrible	Progress review 1		
Break	28/3 – 1/4				
5	4/4 – 8/4	Introduction to Teleoperation			
6	11/4 – 15/4	Q&A 1			
7	18/4 – 22/4	PCB Hints	Progress seminar	25% demo	
8	25/4 – 29/4	Q&A2			
9	2/5 – 6/5	WTF??		50% demo	
10	9/5 – 13/5	Q&A3	Progress review		
11	16/5 – 20/5	Q&A4		75% demo	Preliminary report
12	23/5 – 27/5	Q&A5			
13	30/5 – 3/6	Closing lecture		Final testing	Final report and reflection

You are here

Crimmy!


Almost there!
Stay on target!

The Final Countdown

- That means more stress and more fatigue
  - You work best when you're well rested; if it all gets too much, take a break or go home
  - If someone passes out in the lab, please move them gently out of the way of foot traffic.
  - Clean up wire clippings, plastic scrap, random debris – prevents slips and makes dropped components easier to find!

Preliminary reports

- We survived the Markathon… barely!
  - So many prelim reports… so many…
- Pick yours up after the lecture
  - Or (if you're not here) from my office

Final report

- Due on Friday 3rd
  - *Real soon now!*
- Your report must have:
  - Max 6 pages of explanation/writing
  - Bibliography/math/sims/figures/budgets/etc in the appendices
  - Analytics, reasoning, justification

Final report

- The report is individual assessment
- Focus on your contributions and efforts
  - But explain how they fit into the team's design
- Your 6 pages are precious
  - Make sure any content essential to understanding your design is in the main body
  - Use the text pages wisely and the appendices generously

Final report

But you already know what to do…

Feedback from preliminary reports

Here is some quick feedback from what I've glanced over, plus comments based on the last three years' classes and highlight typical problems seen in preliminary reports.

I have the same question as you

WHY??

The awful truth

- I don’t actually care *what* you did.
  - Seriously. If you did a lousy job, physics itself will punish you (and your marks) at the demo
- The report is really all about your process.
  - Even if it didn’t work out, if your justification and reasoning is sound, we will reward you.
  - If you made stupid decisions… well…

~~What~~ Why we really want

So tell me WHY, not WHAT

Justify your statements

- People are not very good at this
  - Lots and lots and lots of unsupported and frankly presumptuous statements
  - Weak and hamfisted attempts at reasoning, when an effort is even made
- Do not make out your solution was the only possible/necessary/innately motivated one
  - Compare the alternatives critically

Justify your statements

- If you can't give a reason for a design decision, then *why did you make it*?
  - You need to take a long, hard look in the mirror

Every design decision must be justified

A warning

If you say stupid things like “We needed a microcontroller so a 328PA was necessary” we will take *glee* in not-doing-you-any-favours.

Do not insult us with feeble arguments.

Do not try to B.S. us – we see right through it.

If you hacked, you’re screwed; if you did real analysis like you were told, you’ll be ok.

Feedback from preliminary reports

- You (probably) need more specific analysis
  - Use real numbers that show your design or approach will work – not just general equations
  - If numbers aren't appropriate, show what your logical method was (consider a decision-table)
- Don't give "summaries" of analysis and then no actual data <= multiple offenders
  - We will assume you don't actually have any

Feedback from preliminary reports

- Do not exceed 6 pages written content
  - Don't try to sneak it into appendices – *seriously*
  - Go nuts with appendices for bibliography/math/sims/figures/budgets/etc
  - There is no such thing as too many pictures
- Just 3 pages and a few pictures won't cut it
  - Just 3 pages *without* any pictures won't either

~You know who you are~

Feedback from preliminary reports

- Don’t abuse intensifiers and adjectives:
  - eg. “Very”, “many”, “essential”, “optimal”

    => This year’s new champion: “extreme”
  - If you DO use such adjectives, you had better qualify what makes it very/essentially/extreme

“Omit unnecessary words.” – William Strunk, Jr.

Feedback from preliminary reports

- The best words:
  - "Because", "therefore"
  - "Based on our analysis … in the appendix."
- The worst words:
  - "From our research*…"
  - "It was decided…" <= major offender this year!
  - "<other team member> did…"

*If you use the word "research" *it had better come with citations*

When you get your feedback

- If you feel like you don't have many comments and want more, please just ask
  - I will try to give you feedback right away!
- If you can't read my writing, ask me, and I will do my best to figure out what I wrote
- I am also happy to sit down with you and discuss your comments in detail – just ask!

Next week

- Monday 30th – Noon o'clock
  - Toolbox hand-in
  - Project hand-in
  - Lab clean
- Tuesday 31st – The Final Lecture
- Tuesday and Thursday – Final demos
- Friday – Exhibition demos?

Toolbox hand in

- Toolbox hand in on Monday 30th, noon.
  - Peter Bleakley and co will be there to check your toolbox and mark you off
  - You are collectively and separately responsible for the good condition of your toolbox.
  - If your toolbox is not complete, you will not receive a mark until it *is*.

Project hand-in

- Hand-in during the Tuesday contact session
  - Bring a box to keep your system in after testing
  - Your box must be CLEARLY marked with your team number (so I can find it next week)
- You must also submit:
  - Code, engineering drawings, diagrams, user manual and other material as appropriate

Project hand-in

- Be sure your project is finished and complete at hand-in time.
  - You **won't** have access to the lab, your system, the borehole or the mines until your demo
- Take all your not-part-of-the-assessment stuff with you when you leave
  - You will not be able to get in to retrieve it

Lab clean up

- The lab will be cleaned prior to sign-off
  - Floor swept out
  - Rubbish to go in Hawken skips
  - Soldering area tidied up
  - Your desk must be cleared/clean, locker empty
- Beat the rush – it's a really spiffy idea to clean your part of the lab early if you can!

The final demo

- This is it: where most of the marks in this course from come from!
  - Testing on Tuesday and Thursday next week!
- Sign up on the doodle poll for a slot
  - Sign-ups open this afternoon (close Sunday)
  - You should all know the sign-up process by now

Final lecture

- Please come along to the wrap-up lecture next week
  - Important information about the demos
  - Notes for the exhibition session
  - Exclusive 'behind-the-scenes' look at the class concept, design and artwork
  - SECaTs

Dun dun dunnn!

SECaTs

Well… actually…

Electronic SECaTs

- This year the School of ITEE is once again doing electronic SECaTs online
- SECaTs for this course are already open!
  - Via the link in the emails you should receive, or use the “Have Your Say” option in Blackboard
- You don’t need to do them until next week
  - I’ll remind you again in The Final Lecture

But hey…

Why not take a moment to do the SECaT now?

There's wifi here, and everything!

And now…

Gratuitous project tips

- Take the time to read through the building criteria sheet
  - A handy reference for good engineering craft!
- Avoid the dreaded “Flims-o-tron”
  - Build your stuff to be robust and strong; I will be testing for solid, quality construction
- Commenting your code well is a sure way to get more marks in build quality

Gratuitous project tips

- Some sort of cable management system seems like a really good idea
  - Also stops you from getting yelled at
- Recharge your battery fresh for the day
  - Yes, you can keep your batteries (and charger) at hand-in to recharge, ready for testing day
- Work out your game plan *before* demo day
  - Eg. rescue one at a time, or load in stages?

Questions

Sadly, only limited time for questions today

I have a meeting with the Head of School at 12:30 that could not be rescheduled.

Tune-in next time for…

The Final Lecture

or

"The light at the end of the borehole!"

Fun fact: This is the only year in which the lab has gone to Condition Yellow.