ME189C & ECE188C: Week 5

Course Timeline

Week 1	Fabricating and testing	
Week 2	Fabricating and testing	
Week 3	Fabricating and testing	
Week 4	Fabricating and testing	
Week 5	Project completion Plan (ME only)	Final prototype 1 completed

Course Timeline

Write Paper, Design Poster, Design Presentation, Design Video

Week 6	Reworking prototype and testing
Week 7	Reworking prototype and testing
Week 8	Reworking prototype and testing
Week 9	Project completion review Poster 1st Draft Due Tues 5pm
	Poster reviews Wed 12-3pm Poster Final Draft Due Fri 5pm Video Due Sunday
Week 10	Presentation rehearsals Tues afternoon
	Design Fair/Showcase on Wed afternoon

Project Completion Plan (ME only)

2 pages max

Testing plan

- Revisit Specs (customer needs and engineering requirements)
  - *Which did you list as the most important?*
  - *Did you hit those?*
  - *What tests have you done thus far?*
  - *What tests are you planning on doing to confirm your design hit the mark?*
  - *Do you know exactly where you will do the tests, have you scheduled time (if necessary)?*

Remaining Fabrication

- Challenges that risk the completion of your final prototype?

Gantt Chart for the remaining weeks

- Don’t forget all other deliverables for the course on this chart
  - *Don’t forget to list all items and who will be the lead on them (ie. Writing paper, starts week 7 and is led by Frank, completion by Tuesday of week 11)*

Example: My project is to develop an electric vehicle

Critical needs identified by our customer were fast acceleration, a sleek design as defined by high marks on aesthetic appeal via focus groups and a quiet operation. Our product will compete with Tesla.

Benchmark – Tesla Model S

- 0-60 in 2.8 seconds
- 85% of the targeted 20-30s age group found it to be appealing
- During full throttle acceleration 62.5Db

Example: Tests and outstanding Fabrication

Proposed Tests:

Acceleration to be performed on the UCSB test track using electronic sensor in the speedometer to track the time to 60mph. Sensor will be provided by Kirk Fields. Test date: next week

A focus group made of 20 people in our targeted age group will be evaluating our car alone and against the Tesla Model S to determine appeal. Test date: tomorrow

During the acceleration test, a sound meter will be positioned on the headrest of the driver to determine decibels. This equipment provided by Kirk Fields. Test date: next week

Outstanding fabrication

The shift knob needs to be polished today and then fabrication is completed

Done by the end of:

	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Schedule final presentation	Bob					
Focus Groups	Sally runs two focus groups					
Acceleration Tests	Frank, Joe collect supplies	Frank, Joe run tests	Frank, Joe make write up			
Fabrication of knob	Eric polishes part					
Create Project presentation		Bob creates presentation	Revisions on Presntation	Project Completion review		
Customer review				Customer review		
Final Design Packet		Sally and Bob write final packet	Sally and Bob - Edits on packet	Packet ready for presentation		
Video		Eric begins video	Eric continues video	Eric continues video	Eric Finishes video by Sunday	
Design Fair			Sally creates the poster	Sally makes poster revisions	Poster to Ekta	Fair on Wednesday

Design Fair and Showcase

- 6/7 from 2-5pm at Corwin Pavilion
  - Design Fair (poster/demo session) 2-4pm
  - Design Showcase (TED style talks) 4-5pm
- Open to the public
- Lots of potential employers
- Dress to impress

Design Competition

Competition Information

- Time/Date: Wed, June 7th from 2-4pm (Arrive at 1pm for set-up, class photos)
- Location: Corwin Pavilion
- Format: Each team will have a booth with electrical power access, table, and their poster. You will have a dedicated time to showcase your project to the judges (25 minutes per interdisciplinary team, 12 minutes per ECE team, 8 minutes per ME team). If possible, you should work a demo of your product into what you present. If applicable, you may have supplementary props and/or a laptop with pictures, images, videos, but ABSOLUTELY NO SLIDES! Judges will likely interrupt you with questions, so be prepared to think on your feet!

- Judging Criteria:
  1. Quality of the engineering work and of the resulting final product.
  2. How well were the goals of the project achieved?
  3. Quality of presentation / demonstration.

Competition Information

- Projects will be judged by a panel of faculty and industry judges
- There will be three separate competitions, each with 1-3 awards:
  - Mechanical Engineering (3 awards)
    - Most Innovative Project
    - Most Marketable Project
    - Best Technical Project
  - Electrical and Computer Engineering (2 awards)
    - Most Innovative Project
    - Best Technical Project
  - Multidisciplinary Projects (1 award)
    - Best Multidisciplinary Project

Poster Information / Overview

- Size: 36” x 48” (ECE and Multidisciplinary), 30” x 40” (ME)
- Content: Refer to template and instructions. Note:
  - You may use provided template or come up with your own design
  - Must include (i) Team member names, (ii) Title, (iii) Your logo, (iv) Sponsor logo, (v) UCSB College of Engineering logo, and (vi) Acknowledgements
  - Background color cannot be black
  - Images must be at least 150dpi (preferably at least 300dpi)
- General Tips:
  - Use a minimum of text (bullet point descriptions are encouraged)
  - Make text large enough to be readable from a distance of 5 to 6 ft
  - Use graphs, charts, photographs, and illustrations as much as possible
  - Use graphics to communicate your points quickly and to demonstrate your work
  - Ideal poster will serve both as a stand-alone poster and as a reference for your presentation

Example only

Example only

Example only

Template to be posted

Insert project logo and tagline here

Insert Poster Title Here

Student #1 | Student #2 | Student #3 | Student #4 | Student #5

Example only

Example only

Example only

Template to be posted

Background

Insert background info about your project, motivation, etc. Include a figure if applicable

Overview

Insert brief description of product, problems that it solves, bullet points of key features, etc

System Block Diagram or Design Specs

Insert block diagram or design spec

Overview / Product Name

Insert picture of final product

Caption and/or text (preferably bullet points)

Hardware / Key Components

Picture: Key Comp #1	**Label** Describe key component #1, including applicable specs
Picture: Key Comp #2	**Label** Describe key component #2, including applicable specs
Picture: Key Comp #3	**Label** Describe key component #4, including applicable specs

Key Result #1 (e.g., thermal test, drop test, etc)

Insert figure

Describe key result (consider bullet point list).

Key Result #2 / References / Conclusion

Insert figure

Describe key result (consider bullet point list).

Sponsor Logo

Acknowledgements:
Acknowledge everyone that helped you with your project (sponsors, mentors, instructors, TA's, etc).

UC SANTA BARBARA engineering

Poster Deadlines / Submission / Printing

- Tues 5/30 : Submit first draft by 5pm, share over Google Drive to capstone.ece188@gmail.com
- Wed 5/31: Poster reviews 12-3pm
- Sun 6/4: Submit final draft by 5pm, share over Google Drive as above.
- Mon 6/5: All posters will be printed. Contact Ekta Prashnani (ektaprashnani@gmail.com) with questions
- Tues 6/6: Practice sessions at Corwin Pavilion in the afternoon

Project Completion Review / Customer Review (Final Presentation)

Project Completion Review

Content:

- Tell us about your design
- What motivated the design
- Don’t forget to include the design specifications which came from
  - *Customer needs, Engineering Characteristics, competitive benchmarking*
- Show us the test results, how does your product stack up to the competition?
- Get into the details of how your product works
- Utilize video, pictures, diagrams

Design: Spend a few weeks really preparing for this review. Take pride in your story and design. Think about how to sell it!

Leading up to the presentation

Have a backup plan and a backup to the backup plan

- Bring your own computer that you trust
- Bring a USB stick
- Have it on the cloud

Buy your very own clicker (trust me, you'll have to make presentations in the future, they're $10)

Pro Tips

Try not to organize presentations chronologically

This is amazingly common with students

Remember to tell a story but **don't make it a cliff hanger**

Present the system first before getting into the nitty gritty

Talking about the design evolution is great and shows how much work you did but…

The audience grows tired of waiting…thinking, okay so what…what are we talking about

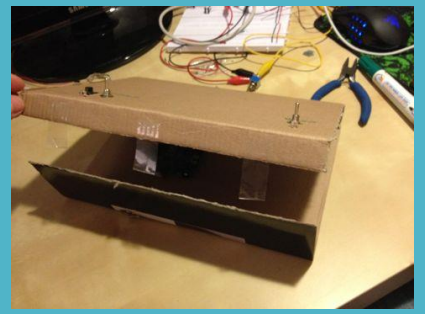
Example (what to try to avoid)

SLIDE 1

Customers needs show that the system needs to be:

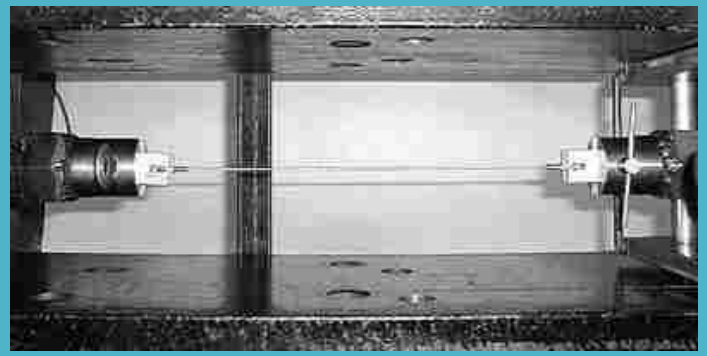
1. Fun
2. Sturdy (handles loads of 300 lbs)
3. Easy to access (footprint less than 100 square inches)

SLIDE 20



SLIDE 5

1. Rope testing



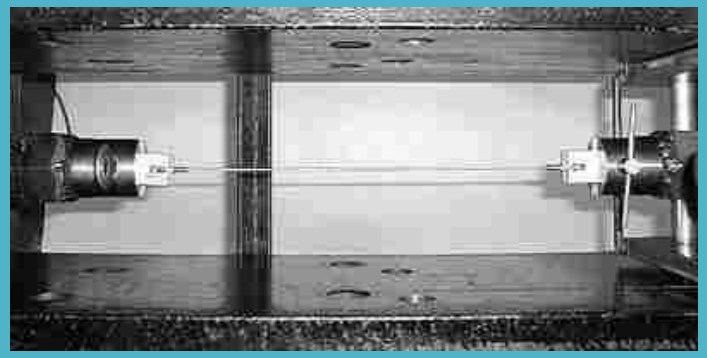
Last slide

Example (instead do this)

Slide 0

SLIDE 5

1. Rope testing



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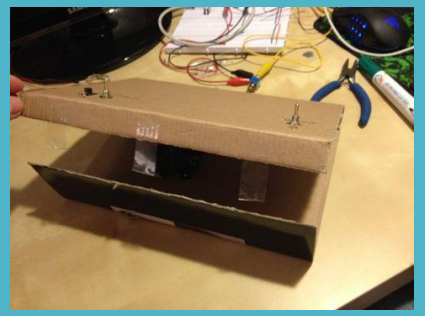

Last slide

Elevator pitches in presentations

You may use a visual display with the elevator pitch in a presentation format

If you're telling a story, then, great, no slide

If you're going to describe technical elements or the layout of the device, use a visual

Slide 0

Go commando!

No note cards, papers to read from

Leave it all on the floor!

Signup (ME only)

https://docs.google.com/spreadsheets/d/19EtB4KOFlBLR2FmZgvR9NOwZUBRNRr9-XqIJUchQA_M/edit#gid=0

Instructions:

Talk with advisor and sponsor

Determine if one time will work for both or if you need to travel

Block off time for travel and email us to let us know what you're thinking

ESB IS NOT BOOKED YET! When you email us, we will try to book. I sent a link for ESB rooms. It's a good idea to check if it is open

Video due Sunday June 4

Video specifics

To be shown in front of a crowd of 400-600 people

30 seconds max

Demonstrate your prototype working

Think of this as a commercial on television– sell us on your idea, why it’s important

Condensed elevator pitch

Design Package: Due during the final presentation

Include in design package (Y/N)	Item	Responsible team member(s)
	Documents	
	Updated Project description and target specifications (from first quarter report)	
	Assembly drawing	
	Sub-assembly drawings (list)	
	Detail drawings (list)	
	Plumbing schematic(s) (list if more than one)	
	System and sub-system block diagram(s)	
	Operational flowcharts(s)	
	Circuit schematic(s), wiring diagram(s)	
	Bill of materials	
	Budget	
	Schedule for completing fabrication and testing in spring quarter	
	Prototypes and testing	
	Design questions that you have answered or plan to answer with prototype testing (list).	
	Describe the new prototypes that you built or plan to build this quarter	
	Analysis and modeling	
	Design questions that you have answered or plan to answer with modeling and analysis (list)	

Modifications

Update all sections with any new information or findings

Update drawings to remove the fabrication plans / update them to most current

Grading

Quality of Packet

Quality of Engineering Analysis or testing

- That informed design
- That compared actual performance with target specs

Quality of the solution

- Fully explained and depicted with CAD images

Documentation

- Professional drawings with appropriate tolerances

Data Dump

Data Dump

ME: Box folder to be set up for your to dump all CAD files and everything else for the sponsor / future use

ECE: Google Drive

Multi: Both

Summary of dates

Friday	5-May	Project Completion plan - midnight	ME
	5/22-6/2	Final Presentation	All
	5/22-6/2	Design Packet	All
Tues	30-May	Poster First draft due - 5pm	All
Weds	31-May	Poster reviews - 12-3pm	All
Sunday	4-Jun	Submit final poster draft - 5pm	All
Sunday	4-Jun	Video submitted to Sean	All
Tues	6-Jun	Practice poster sessions at Corwin 1-5pm	All - optional
Tues	6-Jun	Practice Showcase session 2-4pm	Multidisciplinary
Weds	7-Jun	Design Fair and Showcase 2-5	All
Friday	9-Jun	Data Dump to Box Folder	All
Friday	9-Jun	Beach day - 1pm	All - optional