

Title: Mechanical Testing System Coupled with an Environmental Chamber for Hydrogels

Names:

Team: Gabriel Martinez-Diaz, Darcee Nelson, Charlie Haggart, Mike Piche

Client: Prof. Weiyuan John Kao

Advisor: Paul Thompson

Date: 1/23/03 – 1/28/03

Problem Statement: To update an existing procedure to make dog-bone stencils, approved by the American Society for Testing Materials (ASTM), and to test an environmental chamber, built in BME 301, to be used with a mechanical testing system in order to test the mechanical properties of hydrogels including stress, strain and creep.

Restatement of Team Goals: N/A

Summary of Accomplishments:

1. Decided to keep team roles from BME 400:
 - Gabriel Martinez-Diaz – Communications liaison*
 - Darcee Nelson – Team leader*
 - Charlie Haggart – BSAC*
 - Mike Piche – BWIG*
2. Decided on a tentative Monday meeting time of 4:30 pm in the Health Sciences Library.
3. Decided on a Friday meeting location of room 1036 ECB. Note: Darcee will have to leave at 1:00 pm because of class at 1:20 pm.
4. Decided on fulfillment of graduation requirements: participating in Engineering EXPO and writing a grant proposal.
5. Discussed team goals for the semester.
 - a. *Tensile Testing:* Compare the forces applied by the Instron 5548 (lowest force to generate displacement) with the sensitivity of the load cell in the Instron 1000 to determine if the machine will be sensitive enough to use for tensile tests. Preliminary tests suggest that it may not be.
 - b. *Creep Testing:* Stabilize LVDT on base, modify grips and balance LVDT core with weights, obtain/build weight rack, obtain weights, use prototype with ADC, figure out how to log data, prototype validation.

Statement of Team Goals:

1. Make project schedule.
2. Obtain permits for ME shop.
3. Start verifying sensitivity of Instron 1000.
4. Design system to hold the LVDT upright.
5. Continue working on construction of the creep prototype in the ME shop.

Project Schedule: To be finished this week.

Difficulties: N/A

Activities:

Team: Discussing upcoming semester and team bonding, 2 hr

Monday meeting to discuss goals for semester, 1 hr

Gabriel: Friday meeting, 2 hr
Total: 5 hr

Darcee: Friday meeting, 1 hr
Writing progress report, 0.5 hr

Total: 4.5 hr

Charlie: Friday meeting, 2 hr
Total: 5hr

Mike: Friday meeting, 2 hr
Total: 5 hr