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: 2/5/03 – 2/11/03

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:
1. Discuss graduation requirements.
2. Assign dates for tensile tests of rat skin and muscle tissues.
3. Update schedule.
4. Brainstorm modifications of grip system.
5. Choose design of grip system and order parts on Friday.
6. Begin work in ME shop.

Summary of Accomplishments:
1. Registered for Undergraduate Research Symposium for outreach requirement.
2. Brainstorming and sketches for modifications of the grip system/creep chamber. Discussed possibility of modifying tensile chamber so that with a few changes, chamber can be used for tensile and creep testing. Several design ideas are going to be discussed with Bill Hagquist later this week.

Statement of Team Goals:
1. Obtain copy of Labview to use in Dr. Kao’s lab.
2. Decide on final design modifications after discussion with Bill Hagquist.
3. Order parts for modifications of chamber.

Project Schedule: Last updated (2/4/03)

Difficulties: Class schedules conflict with rat skin and muscle tissue testing dates. In general, there is little overlap between team member’s class schedules and hours that the machine shop is open. In addition, the current grip apparatus is very inconvenient for the researcher to use. Delays in ordering parts and construction are due to the consideration of many possible solutions.

Activities:
Team: Friday class, 2 hr (Darcee, 1 hr)
Gabriel: Monday meeting to discuss changes to grip and creep chamber, 2 hr
Preparing application for Undergrad Research symposium, 0.5 hr
E-mailing, Client contact, Notebook, 1hr
Proposal, 1hr
This week: 6.5 hr
Total: 17.0 hr

**Darcee:** Monday meeting to discuss changes to grip and creep chamber, 1.5 hr
Design brainstorming, sketches 1.5 hr
Progress report, emails, notebook, 1 hr

This week: 5 hr
Total: 15.5 hr

**Charlie:** Monday meeting to discuss changes to grip and creep chamber, 2 hr
Design brainstorming, 1 hr

This week: 5 hr
Total: 17 hr

**Mike:** Monday meeting to discuss changes to grip and creep chamber, 2 hr
Updating notebook, 1 hr

This week: 5 hr
Total: 16.5 hr