Proposing and Performing an Experimental Project

Due at the beginning of your lab session,
week of April 1

Proposals (Week of April 1)

For this Project, you are to describe an experimental project to be performed during one ME 3057 lab session. This project must be performed in your regularly scheduled ME 3057 lab section, using existing ME 3057 equipment and with a team composed of members of your ME 3057 lab section. Your proposed project may call for additional instruments or test specimens; however, you will be responsible for obtaining those instruments or specimens, and your proposal must explain how you will obtain them and how you will integrate them with the existing equipment. Proposals will be evaluated according to these criteria:

1. The feasibility of the project,
2. The novelty of the project *(i.e. how different it is from class projects and problems you have encountered at Georgia Tech thus far)*,
3. The identification of appropriate benchmarks for assessing success,
4. The experimental setup and instrumentation must be fully realized.
   All projects and all additional instruments must be safe to use in our labs.

Project proposals are limited to one single-spaced page of text, with displays or diagrams attached as appendices.

This proposal is an individual submission.

Project Teams

Students are to perform proposed projects in their regularly scheduled lab section. Students are to perform the projects working in teams of three, with all the team members drawn from the same lab section. In labs with odd numbers of students, teams of four may be formed, subject to TA approval.

Students must form project teams before proposals are submitted; the team members must be named on the submitted proposal. Each student is expected to work independently to prepare and submit a proposal, and the proposals submitted by team members must be significantly different from one another. Section TAs will evaluate each team's proposals for quality and feasibility; they will select the best-rated project for the team to perform as a lab experiment, and they will notify the team members in advance of the team's lab session. Team members may separately indicate to their TAs which project they would prefer to perform in lab.

Performing the Proposed Experiment (Week of April 8)

Projects are to be performed in teams during the team's regularly scheduled lab session. Students will have a full 3-hour lab session to set up their data-collection equipment, calibrate their instruments and collect the data they desire. At the end of the lab session, students are expected to disassemble their equipment and return any instruments and tools to their storage locations in the lab room.

Planning for your lab work:

In order to successfully complete a lab project, student teams are advised to prepare in advance a lab manual for their own use. This should include a setup diagram for instrumentation, an orderly list of data collection steps, and a plan for saving and using experimental data.

Reporting on the Project (Week of April 15)

Students are to submit a Summary Report describing their project. This Summary Report should be limited to 3 pages of text, with figures, equations and tables attached as an appendix. An ME 3057 cover sheet should be used as well, with all team members listed. This report is due at the beginning of your regularly scheduled lab time in the week of April 15. ME 3057 format guidelines are to be used in preparing this report.

As in your regular summary reports this term, this report should describe the project's goals, methods and procedures, as well as the experimental results and their validation (including error analysis, comparison with benchmarks, and the like).

Sections of a Proposal

Introduction

Describe the project and what makes it novel / interesting

Methods

Describe the instrumentation, test cases, analytical methods

Expected Results

Indicate what results are expected / how you will know if the experimental results are incorrect

Expected Significance

Explain what makes this a worthwhile project for an undergraduate lab class.

Budget (waived for this project)

Timeline (waived for this project)

As in summary reports, displays can be attached as appendices.