To: Mechatronics Students
From: Jason Riggs, Lab Manager
Date: August 31, 2001
Subject: Report guidelines

Introduction: The purpose of this memo is to provide an outline of what is expected in the lab memos this year. This section should provide the motivation for the laboratory exercise. A brief summary should be provided, along with what makes the subject of the memo useful. This section should be brief and precise. Three or four lines should be enough to convey the spirit of the rest of the memo.

Methods and Procedures: This section should provide in detail the methods in which the useful data were extracted. The methods are the instruction set for performing the experiment. This should not be a copy of the lab handout. It should, however, give enough detail so that someone with minimal experience could go into the lab and perform the experiment. Do not assume that the audience reading the memo has thorough knowledge of the subject matter.

The experimental setup should be described in some detail, and the reader should be referred to a figure containing a schematic of the experimental setup. If it makes the setup clearer by presenting more than one figure, refer the reader to these other detailed figures. The figures should be numbered in order, and each figure should be referred to in the text. Figures should be placed within the body of the text and as close to the first reference to the figure as feasible. Figure captions should be placed below the figure and indicate the content of the figure. Do not refer to any figures containing results from the experiment in this section.

The procedures are the instruction set for reducing the data. It is appropriate to go into the theoretical background driving the proper data reduction techniques. Important formulae should be provided within the text so that someone could take the data and reduce it by reading the memo. Provide the procedures in the most coherent manner possible. All equations must be explained individually to indicate their relevance. After each equation, define any new symbols, providing the proper units if any.

Results: The experimental results should be presented here. Summarize the important results. If there are multiple results, refer the reader to a table with the results clearly labeled and their units included. Tables must be placed within the body of the text near their reference. Table captions indicating the content of the table are placed above the table. If experimental results are best presented as a figure, refer the reader to the appropriate figure with an explanation of what each figure contains. It is appropriate to compare experimental results to the theoretical expectations and to note trends in the results section, but to not attempt to draw any conclusions.

Discussion: In this section, the results should be analyzed. The trends should be explained with the theory set forth in the methods and procedures section. If there is a discrepancy between the expected and actual results, then the possible reasons should be listed. Indeed, all agreements and discrepancies between theoretical and experimental results should be addressed in this section. In particular, all of the important possible sources of error should be listed.

After discussing the results on a theoretical level, they should be discussed on a practical level. The purpose of the experiment should be grounded in real life applications. In particular, the techniques and results must be related to the robot project.

The final paragraph of the memo should conclude the report in a cohesive manner. The purpose of the experiment should be summarized, along with any important results and conclusions. The final sentence of the concluding remarks should finish the memo in an aesthetic manner. Do not drop off leaving the reader wondering how it ends.