

LAB 1: INTRODUCTION TO SECOND ORDER MOTOR SYSTEMS

MECH 371, Section AI

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Experiment conducted on: July 5th, 2023

OBJECTIVE

State the objective(s) clearly in a concise manner in **your own words**.

INTRODUCTION

- Background information preparing the reader as to what is done during the experiment.
- **Do not** copy what is written in the experiment description.

PROCEDURE

- A general description of the procedure should be given.
- This description should be comprehensive, but brief.
- It should include a generic list of equipment used and a sketch to show how the equipment items are related.
- The enumeration and detailed description of multitudinous mechanical operations or sequence of such operations such as closing switches, reading instruments, turning knobs and so forth, should in general **be avoided**.

RESULTS

- Answer all the questions posed in the experiment description.
- All observed and calculated data should be tabulated when possible.
- Use significant figures for all your measurements, calculations as well as **Simulink models**.
- Matlab code should be listed if applicable.
- Headings and subheadings (titles) identifying items of data or sets of data should be used.

SAMPLE CALCULATIONS:

- Show a sample of a complete calculation of each type involved in the determination of calculated data and the solution of problems.

- These sample calculations should be first shown in **symbolic form** with all symbols properly defined.
- Then numerical data should be used with units shown in the actual calculations.

GRAPHS:

- A single graph should be represented using the entire sheet of paper. Multiple graphs on one sheet is not acceptable.
- Graphs axes should be clearly labeled, including units where appropriate.
- Discrete experimental data that are plotted on appropriate graphs should be designated with small symbols, such as circles, to distinguish these data from those represented by curves fitted through them either intuitively or statistically or by mathematical model.
- If more than one dependent variable (ordinate) is presented on a graph, each variable should have a different symbol.
- When mathematically fitting curves to experimental data, use appropriate judgment.
- As a general rule, the lower the complexity of the curve fit that represents the data trends, the better.

DISCUSSION

- It should be a complete discussion of the results obtained.
- Part of this discussion should deal with the accuracy or reliability of the results.
- Comparison of the results obtained with those that would reasonably have been expected from a consideration of the theory involved in the problem.
- Whenever the theory is apparently contradicted, the probable reasons should be discussed.

CONCLUSIONS

- In this section the conclusions which were supported and drawn in the discussion are succinctly restated, usually as a numbered list. No new information should appear in this section.

SOURCES OF ERROR

- Errors resulting from the necessity of neglecting certain factors because of physical limitations in the performance of the test.

REFERENCES

Whenever referring to published sources of this kind, for example when quoting technical specifications or specialist theory, full particulars of the source in a numbered list of references must be included.

DATA SHEET

The data sheet, signed by the test performer, must be attached at the end of the report.