

# **LABORATORY MANUAL**

**FOR**

**ME 576**

## **COMPUTER CONTROL OF MANUFACTURING PROCESSES**

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## **FORWARD**

This manual is intended as a basic description of laboratory exercises and experiments in the areas of CNC part programming, PLC logic programming, CNC-PLC interaction, motion control and actuator principles for ME 576 – Computer Control of Manufacturing Processes. The exercises are designed to provide the students with opportunities to gain hands-on experiences and experimentation in these important areas.

It is highly recommended that you read over the description of the exercise or experiment and the related material in your textbook and write required programs before coming to the lab sessions. This will enable you to make more effective use of the time available and generate more reliable data for your reports.

As one of the very few hands-on laboratory courses in automation and CNC, we hope that you enjoy the experience and take the fullest advantage of it.

Y. C. Shin

January 2017

**TITLE (COVER) PAGE**

ME 376: Lab. Exp. Report (Experiment # \_\_\_\_\_ )

On

“ \_\_\_\_\_ ”

Section No. \_\_\_\_\_, Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

By

(1) Name: \_\_\_\_\_

(2) Name: \_\_\_\_\_

(3) Name: \_\_\_\_\_

Date : \_\_\_\_\_

## ME 376 LABORATORY REPORT FORMAT

- I. Abstract: A brief description of the overall goal of the lab exercise and the most important results.
- II. Objective: Briefly, state the objective of the lab exercise in your own words.
- III. Results: Present the results using prose, graphs and/or tables to explain them. Follow the general/standard conventions for figures and tables. The original data sheets, computation sheets and other appropriate material are to be included as appendices.
- IV. Discussion: Discuss the best results (referring to specific figures and tables). Be sure to discuss the results in comparison with existing theories, other references, if necessary, etc. Also discuss probable sources of error and how (if possible) they can be eliminated.
- V. Conclusions: A brief summary of the lab experiment, results and conclusions drawn from the lab exercise. Also suggestions/recommendations for improving the design and execution of the experiment may be included.
- VI. References: List all references used for the preparation of the report.
- VIII. Appendices: The following may be included when appropriate:
  - A. Original data sheets
  - B. Computation sheets
  - C. Computer program listings and output
  - D. Other