



**UNIVERSITY OF NICOSIA**

**Department of Electrical & Computer Engineering**

**Senior Year Project  
Report Writing  
Guidelines**

Each student in the ECE-492 Senior Year Project class will be expected to hand in a project report on the day of presenting his/her work in front of a professor committee. A proper project report must include all the necessary sections targeting at a reader who does not have any prior knowledge about the project. This is done to develop the skill in documenting our work and communicating that experience to others. In general,

- a) The report must be presented as a set of sheets (in the form of a booklet) typed on computer using a *Word Processing* package. Use font size 11 and *Times New Roman* or *Arial* type of font.
- b) Must be written in an impersonal form (passive voice; e.g., the voltage across the resistor was measured; instead of saying: I measured the voltage across the resistor).
- c) Must be neat, presentable, and well-organized. Use of proper margins (1.5 inch left margin and 1 inch top, bottom, and right margin), and 1.5 line spacing.
- d) All unknown symbols used must be defined.
- e) Use of proper units for all quantities.
- f) Measurement and/or simulation data must be tabulated in tables. Include a caption for each table on top; e.g., **Table 1.1:** Voltage and current measurements for various resistor values.
- g) Graphs must also include caption and legend. The caption is placed at the bottom of the graph (e.g., **Fig. 3.2:** Voltage across the resistor as a function of resistor value), and the legend somewhere inside the graph itself (often at the upper-right corner). If the graph consists of two traces, use a separate line style for each trace (e.g., solid and dash lines). Sometimes, one may decide to use markers, instead. Note that **Fig. 3.2** indicates that this is the second figure (in order of appearance) in Chapter 3.
- h) Other schematics such as block diagrams or circuit diagrams are all denoted as figures and treated the same way as the graphs are. Simply include a caption at the bottom of the figure (e.g., **Fig. 5.4:** A parallel network of three resistors).
- i) Equations must be typed properly using an *Equation Editor* and given a reference number on the right side; e.g.,

$$V = I \cdot R \quad (0.1)$$

- j) Do not copy straight from any reference, books or magazines. Students often tend to copy straight out of various sources. This is not a good practice in writing reports, and it will be penalized. Use your own words by paraphrasing.

- k) Once the report is typed, you need to bind it at the copy center using a **green, leather hardcover**, with your **name** and **project title** typed on the side (in addition to the front page) so it can be easily identified once at the shelf.

### **Form of the Report**

1. **Title Page**
2. **Signature Page**
3. **Table of Contents**
4. **List of Figures**
5. **List of Tables**
6. **Acknowledgment**
7. **Abstract**
8. **Chapters (e.g., Introduction, Background Theory, System Design, etc.)**
9. **Conclusions**
10. **References**
11. **Bibliography**
12. **Appendices**

# **UNIVERSITY OF NICOSIA**

Bachelor of Science Degree in Electrical Engineering

Final Year Project

## **Robot Arm Controller**

Joe Doe  
June 30, 2008

**A Bachelor of Science Project**  
**in**  
**Electrical Engineering**  
**by**  
**Joe Doe** (font size 20)

---

Submitted in partial fulfillment of the requirements for the  
degree of Bachelor of Science in Electrical Engineering (font  
size 16)

**Date of Approval**

(font size 16)

---

  

---

**Approved by:**

---

Prof Anastasis Polycarpou  
Professor & Head,  
Department of Electrical & Computer  
Engineering  
(font size 11)

---

Dr George Gregoriou.  
Associate Professor,  
Dean of the School of Sciences &  
Engineering  
(font size 11)



# List of Figures (font size 20)

	<b>Page</b>
Fig. 2.1: Magnetic field emerging from a coil .....	3
Fig. 2.2: Permanent magnet .....	5

# List of Tables (font size 20)

	<b>Page</b>
Table 3.1: Inductance measurement .....	3
Table 4.1: Voltage versus current .....	5

## **Acknowledgments** (font size 16)

I would like to thank my parents for sending me to college. I would also like to express my gratitude to my professor for all his help and guidance during the course of this project.

## **Abstract** (font size 16)

The purpose of this project is to design and build an electronic controller that controls the movements of a robot arm. This was achieved through .....

Length of the abstract must be (10-15 lines).

## **CHAPTER 1**

### **INTRODUCTION**

Nowadays, almost nothing can be achieved without the use of computers. Most advanced factories utilize robot arms to manufacture products such as cars, electronic boards, etc.

The majority of robots are industrial robots. This means that robots have replaced people in factories, laboratories, .....

## CHAPTER 2

### BACKGROUND THEORY

Stepper motors are special types of motors which can rotate in both directions having the capability of digital control. Instead of rotating smoothly, they move incrementally in steps. .... **Write a small introduction at the beginning of each chapter (approximately 10 lines)**

#### **2.1 Permanent Magnet Stepper Motors**

A permanent –magnet stepper motor incorporates a permanent magnet rotor, coil windings and magnetically conducting stators. Energizing a coil winding creates an electromagnetic field with ....

##### 2.1.1 Unipolar motors

Unipolar stepper motors are recognized by their center-tapped windings. The number of phases is twice the number of coils.....

##### 2.1.2 Bipolar motors

Bipolar stepper motors are recognized by their .....

## References

- [1] A. Vlader, "Controlling the motion of bipolar stepper motors," *IEEE Proceedings*, vol. 36, no. 12, pp. 1500-1512, Dec. 2010.
- [2] G.A. Papadopoulos, " .....

## Bibliography

1. A. Howard, *Calculus a new horizon*, sixth edition. John Wiley, 1999.
2. G. Gozalez, *Microwave transistor amplifiers-analysis and design*, 2<sup>nd</sup> edition. Englewood Cliffs, NJ: Prentice-Hall, 1997, pp. 384-386.
3. .....

## Appendix A