ABC 123

MODULE NAME

ASSIGNMENT 1: TITLE OF ASSIGNMENT

Name and Surname	Student Number	Signature	% Contribution
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By signing this assignment we confirm that we have read and are aware of the University of Pretoria's policy on academic dishonesty and plagiarism and we declare that the work submitted in this assignment is our own as delimited by the mentioned policies. We explicitly declare that no parts of this assignment have been copied from current or previous students' work or any other sources (including the internet), whether copyrighted or not. We understand that we will be subjected to disciplinary actions should it be found that the work we submit here does not comply with the said policies.

September 14, 2016

Contents

1   INTRODUCTION

This is where you put the work into perspective and state what the practical is about. Answer the following questions:

- What is the origin or background?

- What is the aim? What problem will be addressed?

- What had to be done?

- What are the expected outcomes?

Do not copy the introduction from the study guide. Keep the introduction concise.

2   THEORETICAL BACKGROUND

Briefly give the theory underlying your practical. It can include simplified circuit diagrams, theory, assumptions, mathematics required for data evaluation and interpretation. Keep it brief as this is not the main part of your practical assignment.

3   DESIGN \ METHOD

Give all the details of your design or experimental procedure. If you had to design a circuit, include the following:

- Design equations

- Assumptions

- Final circuit diagram. If your circuit consists of different stages, give a block diagram and the circuit for each block.

  If you have to take measurements, include the following:

- What you had to measure

- Equipment used

- Procedure – when did you measure what and how? What were the steps you followed?

Giving circuits from the internet of how your circuit can look is not a design, you have to present your own circuit, i.e. the one that you designed from first principles. You may not (ever!) paste circuits that you copied from the Internet into any report as a schematic of a circuit that you designed. Do not put photos of your design from your labbook in the report. It is not neat at all and is in any case forbidden in the reports of many modules' including those of Project EPR400.

4   SIMULATIONS

Include any simulations you did to test your design or circuit. These can be in Matlab/Octave/Python, OrCAD/LTSpice or any other simulation package that can simulate your design effectively. Do not include the scripts unless there is a novel simulation technique that you need to explain. Explain the simulation setup, i.e. which software did you use, how did you set up the simulation, what were the parameters and boundary conditions? Then provide the simulation results (also called predictions) in the form of graphs or tables and an explanation thereof. The explanation should point out the characteristics of the simulation results that are important to the task, e.g. the bandwidth of a filter or the phase shift between two points in a circuit.

5   RESULTS

The following should be in this section:

- Any measurements you took, e.g. voltage, current, frequency, noise etc.

- Graphs and/or tables of measurements

- Pictures of the measurements on the oscilloscope (e.g. waveform, frequency spectrum, controller output). Do not include photos of the oscilloscope taken with your phone, rather export the oscilloscope data on a memory stick via the USB and use that. Photos of a signal on an oscilloscope screen are forbidden in project EPR400 reports, so you may as well work out how to export the data from the oscilloscope sooner rather than later to enable you to prepare a professional-looking report.

- If you need to repeat a measurement a number of times, e.g. to determine how accurate1 a sensor detects an object, you need to give a rudimentary statistical analysis. For example, if the sensor detects an object 5 out of 10 times, its accuracy is 50

A photo of your circuit on protoboard is not a result. A result is anything you can measure.

6   DISCUSSION

Discuss your results. What do the results mean? Compare the measured results with your simulations and with the desired outcome. Did you meet the specifications? If you did not meet the specifications or desired outcome, why not? What can you change in your design to improve it? If you had to consult the literature, how do your observations compare to those of other people?

7   CONCLUSION

A summary of what has been done, the primary results obtained and observations made. This section must link with the original, primary objectives, i.e. one should be able to read the introduction and the conclusion and be able to grasp the essence of the report.

8   <u>REFERENCES</u>

If you used any sources, especially in the theoretical background, include the citations here. Your study guide is not a reference – do not copy the study guide for the Introduction and reference it. Use IEEE or Harvard style for your references. Start using EndNote, the reference database manager that the University uses, as soon as possible since it simplifies referencing substantially. Refer to the library's guidelines on referencing: http://www.library.up.ac.za/referencing/index.ht There is also a link to the EndNote installation files on this page.