Dissertation title over two lines

A DISSERTATION SUBMITTED TO THE

UNIVERSITY OF CENTRAL LANCASHIRE

FOR THE DEGREE OF MASTER OF SCIENCE IN THE

SCHOOL OF COMPUTING, ENGINEERING AND PHYSICAL SCIENCES

2012

By

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Abstract

The aim of the thesis is to investigate the performance of Gismos and to design and construct a super multifunctional Gismo. The novel aspects of the new Gismo are described.

The results of testing, which show the abject failure of the Gismo, are presented. In the conclusions proposals for rectifying the deficiencies are outlined.

The abstract should perhaps be about half a page long.

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Acknowledgements

I would like to thank...

Chapter 1

Introduction

The introduction is more important than you may think in this chapter you must set the scene of the subject. Additionally, you should attempt to outline the main aims and objectives of your work.

Give a brief description of what you have reported in this report i.e What is the study to be produced? (THIS IS STRAIGHT OUT OF YOUR PROJECT PROPOSAL, i.e. COPY&PATE).

1.1 Overview of this report

The report begins with a brief description of . . .

The next chapter discusses ...

In the final chapter the main conclusions are drawn..

The chapters, sections and subsections are numbered and added to the table of contents automatically.

1.2 Aims & Objectives

The primary aims of this dissertation. . .

You should also include here the main aims and objectives of your study what are you aiming to show or find out, and justify how this is an original piece of work.

A secondary/tertiary aim of this project and hence this dissertation is to satisfy part of the criteria for the award of ??? in ??? at the University of Central Lancashire in Preston.

1.2.1 Objectives

...

Chapter 2

Literature Review

In this chapter various texts and sources will be identified. . . . . You will need to include other aspects of the chapter in this preamble.

NB **all of the referred texts and articles must adhere to the Harvard (or Vancouver, i.e. numbered throughout the text) Referencing system**

E.g. In recent years the text by [1] has rapidly become the most used undergraduate mathematics text.
OR

E.g. Chapters or more correctly programs 5 to 7 of the text [1] were particularly important to this project.

Note: under Vancouver referencing system, websites should not appear in your reference section they must be included as footnotes.

E.g. Lorna Gibson's website[1] is a particularly cogent starting point for research in to cellular solids since she has such a concise publications list.

2.1 Similar Work in this Area

In this section an examination similar projects.

2.1.1 Subsection

Blah blah interesting things ...

[1] http://web.mit.edu/dmse/csg/

Chapter 3

Methods

Here you will require a brief overview of the various mathematical and experimental methods you have employed during you project. In addition a brief overview of the chapter may also be useful to the reader (see previous chapter(s) for details).

The model of this section are only suggestions and may not be included in your report! Indeed you may want/need to include models that are more appropriate to you project!

3.1 Theory

3.2 Analytical models

Here you will require brief descriptions of analytical modelling and why it is important to your work.

3.2.1 Analytical Model 1

This where all the math you have developed goes! Here just the main equations their application are required (i.e. when you put the numbers in should be left until the results section).

3.2.2 Analytical model 2

Maths equations, such as equation (3.1), can be added in easily and should be labeled and cross-referenced.

$$S = K\frac{\rho}{2}U|U| \tag{3.1}$$

Where K is the resistance coefficient, ρ is the density and U is the velocity.

Remember to explain any variables used.

3.3 Numerical (FE) Modelling

You now require a description of computing methods i.e. ProE, ANSYS or MatLab.

3.3.1 Finite Element benchmarking and software familiarization

As part of this project two simplistic models were used in order to test the software. In each case you will need to explain what boundary conditions were applied to the model and why.

There is scope here for you to earn lots of brownie points.

You could include all steps that you used to produce the FE modelling. It would also be useful to show a figure of your model showing all the elements. You will now need to make some observations about the model, in particular is the plotted field correct and why?

3.3.2 Finite Element Model 1

You now require a description of computing models that you have developed using the FE software.

NB: Do not show screen shots of every step assume that the reader can find what buttons to press in the software. All that is needed here is a couple of paragraphs explaining what you did during each of the processing phases. Justification of the element type is of importance at this stage; it is usually useful to report the number of nodes and elements present in the model and hence the total degrees of freedom.

Of utmost importance it to explain the meaning of all the boundary conditions applied to your models (i.e. constraints, pressures and/or forces applied)

3.3.3 Validation modelling

Good pieces of modelling work will use a second modelling method to validate your results. There is scope here to use other types of numerical modelling methods such as line and surface approximations to the models you presented in the previous section.

If such approximations are not appropriate here then it is may be an idea to use different software in order to validate your results.

What ever the method adapted here.

Chapter 4

Results & Discussion

See your tutor when you come to write the text of this section if you have any problems as it is usually dependent on the nature of the project what is the important results to show. It should also be said that the presentation of the results is also down to the individual to a certain point.

It may be an idea to present results of each of the models described in the previous chapter sections as outlined below.

4.1 Analytical modelling results

Put the numbers in the equations and give the results Here you need a couple of paragraphs detailing the main observations obtained from the modelling methods you have employed. In all cases avoid if possible making comparisons between the results obtained here and the FE modelling as this is exactly what the final section is for.

4.1.1 Numerical modelling results

It may be an idea to explain what graphs you are to include in this section and why they are of importance to the project/case study. The University of Central Lancashire logo as shown in Figure 4.1 is very important as it ...

NB: the rule here is simple do not include any pictures in the report without referring to them in the main text as shown! Additionally, you must make salient

Figure 4.1: UCLan Logo

observations about each of the figures you include. If you do not do this you will receive no marks for them.

4.1.2 Finite Element Model 1

Remember not to include anything without explanation of them and reference to them!!

4.1.3 Validation modelling

In the most part you will repeat the same process as in the previous section you may however include some more graphs or plots of interest.

Chapter 5

Discussion

In an undergraduate report this usually takes the form of a section in the results chapter in post-graduate work this usually forms a whole chapter.

There is scope here to conduct a detailed comparison between the modelling results and students wishing to obtain the highest grades will perform correlation and regression analysis of at least on key-result of the previous sections. You should also comment on the accuracy and precision of the calculations performed. You should also try to explain why the results are as what they are, e.g. why particular values where obtained and why the maximum and minimum values in models occurred where they did!

NB: IN SHORT IT IS IMPORTANT THAT THIS SECTION IS WRITTEN AFTER YOUR CONCLUSIONS; THIS IS BECAUSE IT IS THE PURPOSE OF THE SECTION TO GUIDE THE READER TO YOUR MAIN CONCLUSIONS OF YOUR SCIENTIFIC STUDY!! IT IS USUALLY THE MOST DIFFICULT SECTION TO WRITE SO YOU WILL PROBABLY REQUIRE MUCH SUPPORT AT THIS STAGE. A PERSONAL TUTORIAL WITH YOUR SUPERVISOR MAY BE APPROPRIATE HERE!

Chapter 6

Conclusions & Recommendations

You will need to include a short preamble detailing the salient details of this chapter what are you to present. It is also really good idea in this preamble to explain to the reader when and where in your report that the aims and objectives were met with appropriate cross-referencing. After which you should lead naturally into your main conclusions.

6.1 Conclusions

What have you found out about studying the design and manufacture of this product or your scientific study?

- You May
- Find a
- Bullet point list
- An effective way
- Of presenting
- Your conclusions
- at this point

What are your main observations regarding the running of a project? Did this project run according to plan if not why not

- You May
- Find a
- Bullet point list
- An effective way
- Of presenting
- Your conclusions
- At this point

6.2 Recommendations

Here you will need to write a paragraph detailing some technical recommendations on how to improve your modelling methods perhaps. You should also attempt to explain how the work could be useful to other undergraduate students in the future. It is usually an idea to recommend how the work can be expanded to look at different applications and may be technological research avenues.

The final paragraph of you report needs to comment on the overall running of the project explain if it has run to plan. What you would have done differently and what IT and core-skills and independent learning has taken place.

Making a bibliography

Whenever you wish to refer to books or articles relevant to your report you should use a citation such as [1].

Each document cited must have an entry in a .bib file or item in bibliography. Note that the .bib files can (and often do) contain many more entries than are actually cited in a particular document; the only ones that appear in the bibliography are those that have been referenced to.

The file bibexample.bib provides an example of what can be done with BibTEX. You can find much more information in any book on LATEX or BibTEX.

Bibliography

[1] Stroud (2002) K.E. & Booth D. J., Engineering Mathematics, Palgrave, Chippenham, London.

OR

The bibliography can be added in item by item as above or through using BibTEX file as below.

Bibliography

[1] Title.

Under no circumstances underestimate this section it is VERY important and MUST adhere to the HARVARD or VANCOUVER SYSTEM. Avoid referencing websites in the section they are probably better referred as page footnotes in the main text of the document. In the most part you should include PRINTED SOURCES here and a good report will contain 15-20 references 4-6 of which should be journal paper from the last 3 years or so. It is also a good idea to contain a couple of references from the current year!

Appendix A

Example

One use of an appendix is to include an example of input and the corresponding output to the system as well as any code that has been written.

Appendix B

Supplementary information