

Trinity Term 2020

## **Writing a B1 project**

My candidate number

# 1 Introduction

This is a very simple template which meets the regulations for the B1 mini-project for the Engineering Science degree at the University of Oxford. It contains guidance on the format which should be adopted.

The maximum length of the report is 10 pages excluding the title page and any contents page. The 10 pages includes references and appendices. Reports over this length will be penalised.

There are lots of excellent introductions to  $\LaTeX$  online. If you cannot work out how to do something plugging your question into a search engine usually gives you the answer.

This document contains some brief notes on the content and style expected in the B1 report. It should be read alongside the document 'Engineering Science Style Guide for Writing Mathematics' which may be found at <https://www.dropbox.com/s/r8etbcmcbjpgzca/Engmath10.pdf?dl=0>. Hopefully this document is consistent with the official style guide!

# 2 Tables

$\LaTeX$  produces neat tables although they can be slightly fiddly to create. There are tools for copying tables from Excel. Table 2 is an example table. Tables should be referenced in the text before they appear on the page and have a caption which explains what is in the table.

Time after deadline	Penalty
4 hours	1%
1 day	10%
2 days	20%
5 days	50%

Table 1: Standard penalties for late submission of B1 project.

# 3 Figures

Figure 1 is an example figure. Figures should be referred to in the text before they appear on the page and should have a caption explaining the figure. No figure should appear without being referred to. Vector graphics should be used for figures to avoid pixelated images. When outputting from MATLAB .pdf is best although .eps and other formats can also be used. The only exception to the vector graphics rule is where surf plots (or similar) are used.

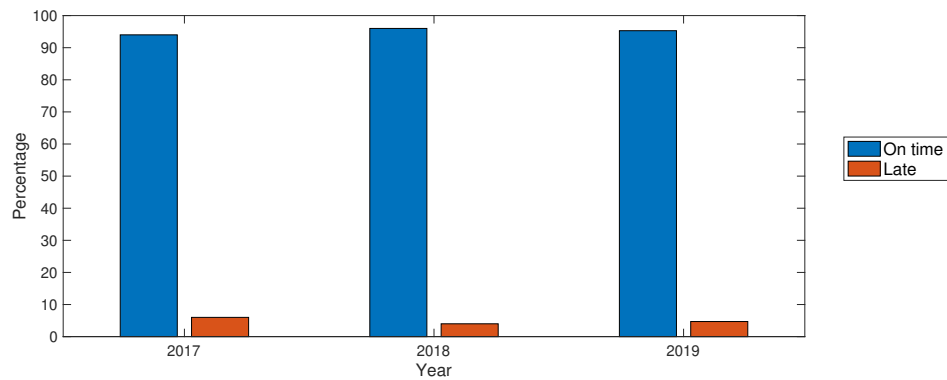


Figure 1: Number of students submitting their B1 project on time or late over several years (approximate data).

## 4 Quoting code

The verbatim environment should be used if you put code in your report.

```
10 PRINT "HELLO WORLD ";
20 GOTO 10
```

Most students put in too much code. Code should only be included if it is the best way of communicating how an algorithm works. Usually words or even a flow chart do this more effectively.

## 5 Equations

There are two basic ways to do equations in  $\text{\LaTeX}$ . They can be 'inline' such as  $y = A \cos(\pi x)$ . Alternatively they can be 'displayed'. An example of this would be:

$$E = mc^2, \tag{1}$$

where  $E$  is energy,  $m$  is mass and  $c$  is the speed of light.

Or you can do several equations together.

$$v = u + at, \tag{2}$$

$$v^2 = u^2 + 2as, \tag{3}$$

$$s = ut + \frac{1}{2}at^2. \tag{4}$$

Note that, in general, variables in equation must be defined in the text as was done for Equation 1. In the B1 projects are to some extent an exception to this. In these variables defined in the project brief can be used without definition in your report.

## 6 Citations

In general we are happy if references use a smaller font and line-spacing than the rest of the text. However, do not go too far—they must still be easy to read.

Referencing may be done using any sensible method. Typically either ‘Harvard’ referencing (name (date)) or numbered referencing will be used<sup>1</sup>. You can choose. It is easy to switch between different referencing styles by changing the bibliographystyle at the end of this file. Try different ones and see which you prefer. Note in most technical documents the list of citations should have the title ‘References’ and not ‘Bibliography’ which is a slightly different thing.

This document uses bibtex for managing references. If you want to cite something you need to create an entry in a bibtex file (in this case mybib.bib). For items in the published literature use Google Scholar to search for them and then export the citation in bibtex format (note this is buggy and you often have to edit this). Some examples are [1, 2, 3] as well as the thesis of the most famous graduate of the department [4].

### References

- [1] M S Williams and J S Todd. *Structures: Theory and Analysis*. Red Globe Press, 2000.
- [2] C C Coussios and R A Roy. Applications of acoustics and cavitation to noninvasive therapy and drug delivery. *Annu. Rev. Fluid Mech.*, 40:395–420, 2008.
- [3] C Mei, G Sibley, M Cummins, P Newman, and I Reid. A constant-time efficient stereo slam system. In *Proceedings of the British machine vision conference*, volume 1. BMVA Press, 2009.
- [4] R S Atkinson. The Application of self-tuning control. Master’s thesis, University of Oxford, 1978.

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<sup>1</sup>Humanities students use footnotes for referencing. We do not generally use this form in engineering.