Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

School of Engineering

Technical Report Guidelines

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1 Technical Report Writing Guide

A well written Technical Report is a pleasure to read and helps to make the content easier to understand. Good technical report skills are a high priority for graduates in industry, as it enables them to get information over to the work colleagues and customers in an accessible format. It is vital that the writing within a technical report is concise and accurate. A well formatted and presented report is often the signs of a good quality piece of work.

For every technical report assignment set within the School of Engineering a portion of the marks is assigned to 'Skills for Professional Practice'. A well-presented report can help you easily increase the marks you receive in this section.

Every report written will be slightly different depending on the assignment brief, however the aim of this guide is to provide the author with the information and skills required to achieve the best report possible.

When writing a technical report, the author needs to ask a series of questions about who the final reader will be and what they are expecting. When asked to produce a technical report for an assignment, the questions to consider are;

- What are the aims of the report as set out in assignment brief?
- What areas should be covered by the report?
- Is personal knowledge and understanding clearly demonstrated?
- Is any research included referenced correctly?

By having a well formatted report layout it can help the writer be confident that they are going to achieve the report required by the assignment brief.

This guide has been produced assuming that Microsoft Word is being used as the word processing software.

Within this report you will see mention of the UWTSD Harvard Referencing Guide, this will be available from Summer 2017.

2 Report Format

As stated in the introduction to this guide, a well formatted and organised report is a large step towards producing a successful piece of work. Every report written can require a slightly different layout depending on the content to be included within the report. The important aspect of all reports is that when it is read the report flows from the introduction to the conclusion.

The different sections/chapters that can be included in a technical report are;

- Title Page*
- Abstract
- Acknowledgements
- Contents Page*
- Introduction*
- Literature Review/Background/Research*
- Methodology*
- Results
- Analysis
- Discussion*
- Conclusions*
- Evaluation
- References*
- Appendices

Sections with a * next to them are compulsory in all reports, other sections can be added or removed as required. **Remember** that you can rename the chapters, so they are in context for the report being written. As a general rule, every chapter should start on a new page and should be numbered, see Section 3.1 for more information.

Make sure the report is organised in a way that will be suitable for the reader

2.1 Title Page

The title page needs to include the following information

University of Wales Trinity Saint David

School of Engineering

Title of Report

Student Name

Student Number

Degree being studied

Date

Module Name and Code

To include the university's logo, please use Figure 4-1 included in Section 4.2 of this report.

2.2 Abstract

If an abstract is required, it will be stated on the assignment brief. An abstract gives the general 'feel' of a report, describing what is included within the report and the main findings. Normally it is advised that the abstract should be the last section of a report to be written.

An abstract should be approximately 250 words in length, though do check assignment brief for exact word count.

Abstracts give a brief overview of the whole report

2.3 Contents Page

By selecting Headings 1, Headings 2 or Headings 3 in the Styles box for your report headings and sub-headings, it means the 'Table of Contents' option in the References Tab can be used. The Table of Contents will automatically create the contents page including page numbers.

2.4 Introduction

The aims and objectives of a report should be included within the introduction chapter. The introduction may also comment on the topics and sections that will be discussed in the report. It needs to set the scene for the report and then allow the main body to start.

2.5 Sections of the Main Body of the Work

The main body of the work will be divided into numbered and headed sections. It is important to use sub-headings within the individual sections as well. By using sub-headings the report becomes easier to read and helps define the different areas of work covered by the report.

These sections should include references to demonstrate the research conducted on the subject. Generally the majority of the references are included in the Literature Review/Background chapter, however they are not confined to that section only. If a specific methodology is being used, then references to sources detailing the methodology should be included in the methodology chapter. When conducting analysis and evaluations, having references included supports any observations or conclusions drawn.

2.6 Conclusions

For a technical report, the conclusions should be short and capture the main findings of the report. Sometimes an assignment may ask for recommendations as to how the work included in the report could be extended or implemented, these would normally be included within the conclusion.

2.7 Evaluation

Some assignment briefs may require an evaluation chapter, especially for more practically based topics. An evaluation chapter could discuss how a practical element went, any issues with experiments or data collection and also a personal reflection on the role played by the author.

2.8 References

All Technical Reports submitted to the School of Engineering should, as a rule of thumb, use the Harvard Reference Conventions. For guidance on this referencing system, please use the UWTSD Harvard Referencing Guide. When writing a report, it is important to keep a record of the resources that you have used and which information has come from them, so that on finishing the report it can be checked to ensure that all information is correctly cited.

All details of references included within a technical report should be correct.

2.9 Appendices

If there is any further information that could be considered important to all but a casual reader, then this should be included in the appendices. It is possible to have multiple appendices but these should be numbered. When appendices are included at the end of the technical report, it is important that some reference to them is made within the main body of the report.

3 Writing the Report

The most important person for a report is the reader. The writing style of a technical report should be in a formal, third person tone. This means that it is written in the past tense and a passive sense.

Example –

> Third Person – 'The engine was connected to the dynamometer…'
>
> First Person – 'We put the engine on the dyno…'

When writing a report in the third person, there should be no I's or We's within the report.

The writing used in a report should be accurate and concise. The accuracy of the report, including research and data, is the responsibility of the writer. Often with a technical report a word limit will be given, this does not mean that a report should be anything apart from concise. It is best to try to **keep a report as short as possible**.

3.1 Report Notation

As mentioned earlier within this guide, technical reports work best when a numbered headings and sub-headings system are used. The easiest numbering system to follow is a decimal notation, as used within this report.

> 1. Main Heading
> 1.1 Lesser Heading
> 1.1.1 Small Heading

This should be maintained throughout the report.

> 8. Main Heading
> 8.1 Lesser Heading
> 8.1.1 Small Heading

By using the Heading options in the Styles box on the Home Tab, Microsoft Word will determine what the next number for each section is. Also by using the heading options, it means that a contents page can be automatically created at a click of a button.

3.2 Originality and Plagiarism

When writing a technical report, it is highly likely that information, facts and ideas will have come from other sources. These must be indicated within the report by using in-text citations and a reference list at the end. For more details on referencing please consult the UWTSD Harvard Referencing Guide.

Any information that is not referenced is assumed to be the authors own knowledge or ideas. If the information included is not from the authors own knowledge, then it must belong to someone else and if it is not referenced then it has been *plagiarised*. This is a **serious offence** and is dealt with under the University's Unfair Practice procedure and regulations. Included in the Student Handbook, which can be found on Moodle, is a section 'Plagiarism: Regulations, Procedure and Penalties', which includes information on how to avoid plagiarism and a link to the University's regulations.

4 Report Presentation

As mention previously in the guide, the presentation of the report is just as important as the layout. There are a number of presentation guidelines recommended by the School of Engineering, these are set out in Section 4.1.

It is important that a technical report looks as good as possible to the reader.

4.1 Main Body Report Presentation

Font – Try to use a clear roman or sans serif font (Times New Roman, Arial or Calibri)

Font size – 11 point text size unless otherwise stated

Line Spacing – 1.5 line spacing

Margins – All margins should be set to 2.54cm

Page numbers – Do not include page numbers on the title, abstract or contents pages. The first page of the introduction chapter should be numbered as page 1.

Printing – Reports should be printed single sided

Binding – Unless the assignment brief states otherwise, a single staple in the top left hand corner of the report should be used.

Justification – All text should be justified so that it is evenly distributed between the margins.

4.2 Illustrating the Report

As the saying goes, 'A picture says a thousand words', it enables the writer to put across some information more clearly than through a paragraph of text. Diagrams, tables, graphs, charts, images or photographs are all examples of non-verbal illustrative material which will need to be labelled. A technical report without any figures or tables, will feel very dry and not help to engage the reader into the subject.

When using diagrams, it is best to keep them simple. If data is to be presented, think about the best way in which to present it. Sometimes a line graph, pie chart or bar chart is more appropriate than having a large table of data included within a report. Complicated or large tables of data are best placed in an appendix and referred to in the main body of the text. Sometimes equations and derivations are the most efficient way of conveying information. Make sure that any symbols, letters or Greek letters used within any mathematics included are clearly explained. Longer equations or derivations are best included within an appendix and again should be referred to in the body of the text.

When including figures or tables within a technical report it is important to think about where is the best place to insert the figure/table for the reader. Make sure that the figure / table also has a suitable label.

Labels for Figures (pictures, graphs and images) **should be placed below the item;**



Figure 4-1 – University of Wales Trinity Saint David Logo (UWTSD, 2017)

By using the Insert Caption option under the Reference Tab in Microsoft Word, it means you are able to cross reference to the figure, Figure 4-1, within the main body of the report and also produced a table of figures if required. For the label, it is acceptable to use either Figure 1 or Fig 1.

Labels for Tables should be placed above the tables;

Table 4-1- Vehicle data for a selection of models (Bauer Consumer Media Limited, 2017)

Make of Vehicle	Model of Vehicle	Engine size (cc)	0-60 mph (secs)	Combined Fuel Use (mpg)	CO_2 emissions (g/km)
Ford	Fiesta	1399	14.4	67	110
Peugeot	208	1398	13.1	74	98
Renault	Clio	1461	14.7	62	120
VW	Polo	1422	12.5	83	93

Again, it is wise to use the Insert caption option to enable cross referencing and the production of a table of tables. Any tables or graphs that are included within a report, most include units and appropriate scales were necessary.

Labels for Equations should be placed to the right of the equation;

$$A = \pi r^2 \qquad \textit{(Equation 4-1)}$$

To insert an equation within a technical report, it is recommended that you use the Equations option on the Insert Tab in Microsoft Word. This built in tool supports writing and editing of equations, allowing the writer to include Greek letters and commonly used maths structures within the equations.

4.3 Finishing the Report

Before submitting a technical report, it should be checked for technical errors, typing errors and inconsistences.

Proof reading is a very important step within the production of a technical report. Technical content should be checked, as well as grammar and punctuation. In the Introduction chapter of the report, the aims and objectives have been laid out, therefore during proof reading it is essential to check that the report does meet them. It is not always possible for the author of a long piece of coursework to proofread accurately because the author is too familiar with what is written and will not necessarily spot all mistakes.

5 Recommended reading

Below are a selection of books that may prove helpful when writing a technical book.

Cotterell, S. 2013. *The Study Skills Handbook*. 4th Edition. Palgrave Macmillan. London

Godfrey, J. 2013. *How to use your reading in your essays.* 2nd Edition. Palgrave Macmillan. London

Van Emden, J. 2005. *Writing for Engineers.* 3rd Edition. Palgrave Macmillan. London

6 References

Bauer Consumer Media Limited, 2017. *Parkers.* [Online]
Available at: http://www.parkers.co.uk/
[Accessed 07 03 2017].

UWTSD, 2017. *University of Wales Trinity Saint David.* [Online]
Available at: www.uwtsd.ac.uk
[Accessed 22 02 2017].

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