# SHORT TECHNICAL REPORT[1]

## Introduction

In Engineering, one of the major forms of communication is the technical report. This is the conventional way of reporting the results of your research, investigations, and design projects.

At TAFE SA, reports are read by lecturers in order to assess your ability to apply your knowledge to a practical task. In the workplace, they will be read by managers, clients, and colleagues. The ability to produce a clear, concise, and professionally presented report is therefore a skill you will need to develop.

A short technical report is a concise report on an issue, project, and/or questions. The goal of a short report is to communicate all key points of the study to busy managers who do not have time to scour detailed appendices to figure out what you did.

It should be restricted to no more than two single spaced pages, supplemented by as many pages of appendix material as are necessary.

## The Format of the Report

The Report should include:

1. **Brief statement of the problem**

The purpose of this statement is to establish the scope of the work undertaken and acquaint the reader with the problem you are setting out to solve.

This section identifies the subject (the "what"), the purpose (the "why"), and the plan of development of the work (the "how").

*Useful Hints:*

- Do not include any background information well-known by the client or tell the client who he/she is.
- This should be a **brief** statement, put in clear and concise terms.

2. **Summary of work**

A summary of what was done: e.g. data collected, models built, scenarios considered, etc.

*Useful Hints:*

- Focus on what?, why? and how?
- Clearly identify any important assumptions or restrictions that were imposed on the work (often termed *constraints*)
- Include a conclusion/results section: e.g. How do you interpret the data? What is the significance of your findings? What knowledge comes out of the work?

[11] Sources used:
http://www.monash.edu.au/lls/llonline/writing/engineering/technical-report/index.xml
http://www.public.iastate.edu/~vardeman/IE361/write.pdf

### 3. Recommendations

Indicate here specific recommendations, which come out from the conclusion/results section above.

## To communicate efficiently, the following are often useful tips

- Consider who your audience is.
- Use bullets to call out key points. This saves space and highlights conclusions so that they don't get missed.
- Use graphs or tables to summarize numerical data. Try to present quantitative results graphically whenever possible, since a visual image is both stronger and faster than a numerical one.
- Make it look good. All reports should be neatly organized, typed, and stapled or bound. There is no excuse for a sloppy or misspelled report.
- Use professional language.
- Avoid long, complicated sentences.
- Please refer to the Student Checklist on the last page of this document. **Lecturers will consider adherence to this in the Marking Scheme for Projects and Technical Reports.**

## Required form of calculations

a) Calculations should be done on 5 mm squared paper, with margins ruled.
b) Every page of calculations must include the main title, the section title or heading, the author's name, the date, and the page number.
c) Calculations must include clear and brief explanations, reasons for selections or choices, clear diagrams, units where relevant, comments where relevant, section headings and section numbers.
d) Explain the intention of each section of the calculations with a phrase or sentence.
e) Include significant reasons for using the adopted design method.
f) Calculations must be complete but brief – long winded calculations are bad practice.
g) Give the equation to be used in terms of defined symbols:
   e.g. Kinetic energy of rotation

$$\mathbf{E}\ (\text{Nm}) = \tfrac{1}{2}\ \mathbf{I}\ (\text{kgm}^2) \times (\boldsymbol{\omega}\ (^{\text{rad}}/_{\text{sec}}))^2$$

h) Substitute numerals for known symbols in the same order in which they appear in the equation. Be sure the units are consistent. Show the units used.
i) Where appropriate, the symbols should be defined by a sketch. (Use annotated sketches regularly.)
j) Identify an unusual equation taken from a book by page number and equation number (if any).
k) If appropriate, state the assumptions on which the equation is based or explain the logic of your method.
l) Highlight any intermediate answers, making it clear how the values were obtained.
m) The origin of data must be clarified (even if it is an estimated value).
n) When using a previously calculated value from another section, give the reference to that section.
o) When extracting data from tables, list the parameters used to locate the data in the table
p) Mathematically simplify the equation by solving for the unknown. Many equations are so simple in form that this step is unnecessary. A good rule for school purposes is to

include all the steps of the solution in the final calculations, except those that you can easily make mentally.

q) Write down results, with units. Your results must be rounded off to the precision or number of significant figures that is reasonable when compared to the input data, your nominated or selected data, calculations and design approach e.g. the Factor of Safety in a design is normally to only 2 significant figures.

r) If you are computing a dimension or size, do not leave it in its calculated decimal form – select a standardised dimension or an available part size.

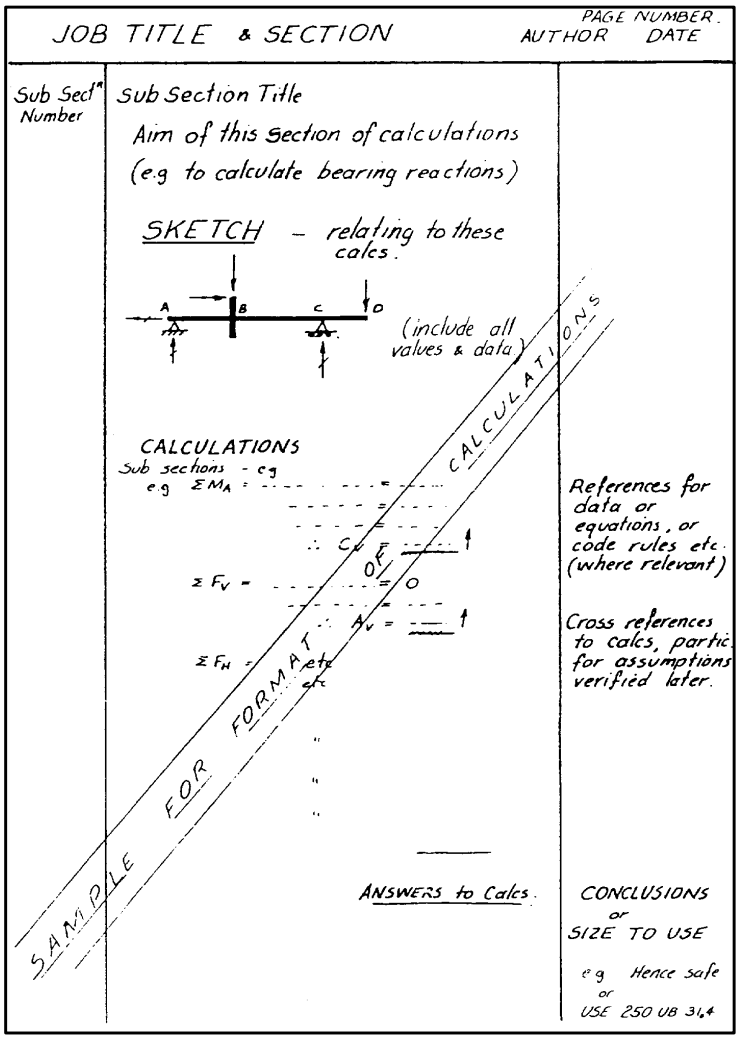
s) Highlight your answer or result – by heavy underlining, or by placing it in a margin column, etc.

t) Give pertinent conclusions or comments or make a clear recommendation (if any), derived from the results of your calculations. Do not leave it to others to interpret the result of your calculations.

u) Reflect on your calculations and try to be sure that you have thought of contingencies and alternatives. Compared to the other parts of the problem, does the answer look reasonable? Have you located critical points e.g. maximum stress, peak current? Have you allowed for the fact that a spurious computed answer may be the result of bad reading?

v) Separate the various calculations clearly by drawing a straight line across the page after each section.

w) A typical calculation sheet should have a style resembling the following.-



## Student checklist before submitting a technical report

| Aspect | Description | Check |
|---|---|---|
| **Structure** | **Introduction** | ❒ |
| | Include project brief | ❒ |
| | Objectives | |
| | **Body** | |
| | Summary of work | ❒ |
| | • What, why, how | |
| | Design calculations | ❒ |
| | • Constraints, assumptions | |
| | • Calculation paper | |
| | • Headings, page and section numbers | |
| | • Annotated sketches | |
| | • Units and symbols | |
| | • Reference standards or catalogues | |
| | Results | ❒ |
| | • Key findings | |
| | • Significance | |
| | Conclusions | ❒ |
| | • Recommendations | |
| | • Importance of results | |
| | • Derived knowledge | |
| | **References** | ❒ |
| | Harvard system | |
| | **Appendices** | ❒ |
| | Tables, charts etc. | |
| **Style** | Succinct | ❒ |
| | Professional language | |
| | Context specific | |
| | Headings and subheadings | |
| **Spelling** | Use of spell check | ❒ |
| | Professional language | |
| | Context specific | |
| **Punctuation** | Commas, full stops etc. | ❒ |
| | Apostrophes | |
| **Grammar and syntax** | Subject verb agreement | ❒ |
| | Verb tense | |
| | Pronoun-noun agreement | |
| | No sentence fragments | |
| | No misplaced modifiers | |