

# **What Is In A Technical Report?**

**By**

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A technical report (also scientific report) is a document that describes the process, progress, or results of technical or scientific research or the state of a technical or scientific research problem. It might also include recommendations and conclusions of the research.

What is technical format?

A technical report is a formal report designed to convey technical information in a clear and easily accessible format. It is divided into sections which allow different readers to access different levels of information.

What is a technical report in engineering?

Technical reports present facts and conclusions about your designs and other projects. Typically, a technical report includes research about technical concepts as well as graphical depictions of designs and data. A technical report also follows a strict organization.

Aim and Objectives

A good introduction starts broad and becomes more focused, funneling down from the background of the project to the specifics of the research problem. It is here that you will articulate the aim and objectives of the project.

The aim is your overall intention for the project. It is the reason why you are doing the research and signals where you hope to be by the end. The objectives are the specific steps you will take to get there.

A typical aim might read something like:

“The aim of this experiment was to determine how the elastic behavior of a piece of bungee cord varied with applied load”.

The objectives are the specific steps you will take to achieve your aim. These are usually formatted as a numbered list to make it easy to see the main steps of the project.

Objectives for the above aim might be:

1. To apply increasing load to a piece of bungee cord and measure the deflection.
2. To examine the relationship between spring constant and applied load.
3. To calculate the natural frequency from spring constant values, at various loads.
4. To compare an experimental value of natural frequency with a predicted value.

The objectives should be specific and measurable. Each objective should build on the previous one and as such guide the reader through the structure of the report. This way the reader will have a clear idea about how the rest of the report fits together.

Be aware that the objectives are not all of the steps of the project. For example, “investigate the context of the problem” is not an objective, it is a necessary step in all projects.

For most projects, you should intend to have a single aim that covers the overall conclusion you wish to make from the work. For the objectives, it might be worth breaking the project down into stages and to write an objective to describe each stage. For example, in a data driven project, there might be collection, processing and analysis phase.

The aim and objective should be put near the start of the report, within the introduction, as it will give clear direction to the reader and allow them to understand the context and theory presented given the overall aim. This is especially relevant to the objectives, in that the theory will be set out using those objectives.

## Guidelines for Writing Reports in Engineering

### Key features of reports

#### Reports:

- are designed for quick and easy communication of information
- are designed for selective reading
- use sections with numbered headings and subheadings
- use figures and diagrams to convey data.

#### Basic Structure of a Report

A report usually has these components: Title page Summary Table of Contents Introduction Middle sections with numbered headings Conclusions References Appendices

### 1. Title page

The title page gives: • the course name and number, the department and university • the title of the report • the authors' names, and ID numbers • the date of submission

### 2. Summary

The Summary (~1/2 page) provides a brief overview of the substance of the report.

The summary • states the topic of the report • outlines the most important findings of your investigation • states the key conclusions.

The summary does NOT • provide general information • explain why you are carrying out an investigation • refer to later diagrams or references.

### Example Summary

Summary from a report entitled: Preliminary Design of a Bridge.

Summary: This report presents a design for a bridge to be constructed on the Calder Freeway crossing Slaty Creek in the Shire of Macedon Ranges. Two designs for the bridge were devised and then compared by considering the cost, construction and maintenance of each bridge. Design 1 is a super-T beam bridge while Design 2 is a simple composite I girder bridge. It is concluded that Design 1 is the better design. This design is cheaper, easier to construct, more durable and easier to maintain.

### 3. Table of Contents

The table of contents sets out the sections and subsections and their corresponding page numbers.

- Number the sections by the decimal point numbering system:

1.0 Title of first main section (usually Introduction) 1.1 First subheading 1.2 Second subheading

2.0 Title of second main section 2.1 First subheading 2.2 Second subheading 2.2.1 First division in the second subheading 2.2.2 Second division in the second subheading

3.0 Title of third main section

- Number all the preliminary pages in lower-case Roman numerals (i,ii,iii,iv,...). You don't have to place the number i on the title page. Just count it and put ii on the second page of your report.

- Number all the remaining pages of your report with Arabic numerals (1,2,3,4,...). Thus your report begins on page 1 with your Introduction.

- Provide a title in your table of contents to describe the contents of each appendix (Note: one Appendix, two or more Appendices). Don't just call them Appendix 1 or Appendix 2. For example: Appendix 1: Sample Calculations.

### Example Contents page

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Abutments.....	2.3 Construction
method.....	3.0 Design 2: 25m Super T-Girder
Bridge.....	3.1
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Economics.....	4.1.1 Construction
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Appendices:

Appendix 1 Design 1 Scale drawings

Appendix 2 Design 2 Scale drawings