

# Engineering Communication Program

Business and industry, as well as university, often demand short technical reports. They may be proposals, progress reports, trip reports, completion reports, investigation reports, feasibility studies, or evaluation reports. As the names indicate, these reports are diverse in focus and aim, and differ in structure. However, one goal of all reports is the same: to communicate to an audience.

Your audience for an academic report is already very well informed. Your professor and teaching assistants will not usually read your report in order to extract knowledge; instead, they will look for evidence that you understand the material and ideas your report presents. Your document, then, should not only convey information clearly and coherently (such as numbers, facts or equations), but should also, where appropriate, detail the logical processes you relied upon (such as interpretation, analysis, or evaluation).

This document describes a general format for a short report, which you can adapt to the needs of specific assignments. Bear in mind that a format, however helpful, cannot replace clear thinking and careful planning. You still need to organize your ideas carefully and express them coherently. Be precise and concise.

## Typical Components

1. Title Page
  2. Abstract or Summary
  3. Introduction
  4. Background
  5. Discussion
  6. Conclusion
  7. Recommendations
  8. Attachments
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### 1. Title Page

The essential information here is your name, the title of the project, and the date. Be aware of any other information your instructor requires. The title of a report can be a statement of the subject. An effective title is informative but reasonably short. Ornamental or misleading titles may annoy readers.

### 2. Abstract or Summary

This section states the report in miniature. It summarizes the whole report in one, concise paragraph of about 100-200 words. It might be useful to think in terms of writing one sentence to summarize each of the traditional report divisions: objective, method, discussion, conclusions. Emphasize the objective (which states the problem) and the analysis of the results (including recommendations). Avoid the temptation to copy a whole paragraph from elsewhere in your report and make it do double duty. Since the abstract condenses and emphasizes the most important elements of the whole report, you cannot write it until after you have completed the report. Remember, the abstract should be a precise and specific summary — give details. A technical document is not a mystery novel — give your conclusion right away. Support it later.

This report considers three energy sources and recommends the best one. (*Too general*)

This report compares nuclear plants, fossil fuels, and solar generators, in order to determine which energy source will best **meet the nation's needs. The criteria for comparison were the economic, social, and environmental effects of each** alternative. The study concludes that nuclear energy is the best of these options, because North America is not self-sufficient in fossil fuels, and solar power is currently too unreliable for industrial use. Although nuclear plants are potentially very dangerous, nuclear energy is still the best short-term solution. (*Specific & detailed*)

## 3. Introduction

**3.1.** Whereas the abstract summarizes the whole report, the introduction of a technical report identifies the subject, the purpose (or objective), and the plan of development of the report. The subject is the “what”, the purpose is the “why”, and the plan is the “how.” Together these acquaint the reader with the problem you are setting out to solve.

**3.2.** State the subject and purpose as clearly and concisely as possible, usually in one sentence called the thesis or purpose statement:

This report describes the design of a full-scale prototype shrimp trawl that would permit a test of the commercial feasibility of electric trawling during daylight.

**3.3.** Use the introduction to provide the reader with any background information which the reader will need before you can launch into the body of your paper. You may have to define the terms used in stating the subject and provide background such as theory or history of the subject. For example, the purpose statement quoted above might warrant some explanation of daylight trawling or even of the commercial shrimp industry. Avoid the tendency to use the introduction merely to fill space with sweeping statements that are unrelated to the specific purpose of your report (“Throughout the ages, human beings have looked up at the stars and wondered about [your topic here].”).

## 4. Background

If the introduction requires a large amount of supporting information, such as a review of literature or a description of a process, then the background material should form its own section. This section may include a review of previous research, or formulas the reader needs to understand the problem. In an academic report, it is also the point where you can show your comprehension of the problem.

## 5. Discussion

**5.1.** This section is the most important part of your report. It takes many forms and may have subheadings of its own. Its basic components are methods, findings (or results), and evaluation (or analysis). In a progress report, the methods and findings may dominate; a final report should emphasize evaluation. Most academic assignments should also focus on your evaluation of the subject.

**5.2.** Before you begin writing, ask the journalist’s questions: who? when? where? what? why? how? The last three in particular will help you focus analysis. Beyond asking these simple questions, you also need to make decisions such as: How do you interpret the data? What is the significance of your findings?

## 6. Conclusion

What knowledge comes out of the report? As you draw a conclusion, you need to explain it in terms of the preceding discussion. Some repetition of the most important ideas you presented there is expected, but you should avoid copying.

## 7. Recommendations

What actions does the report call for? The recommendations should be clearly connected to the results of the rest of the report. You may need to make those connections explicit at this point—your reader should not have to guess at what you mean. This section may also include plans for how further research should proceed. In professional writing, this section often comes immediately after the introduction.

## 8. Attachments

**8.1.** These will include references and may include appendices. Any research that you refer to in the report must also appear in a list of references at the end of the work so that an interested reader can follow up your work. Since the format for references varies across engineering, consult your instructor, or check a style manual for the field.

**8.2.** Appendices may include raw data, calculations, graphs, and other quantitative materials that were part of the research, but would be distracting to the report itself. Refer to each appendix at the appropriate point (or points) in your report. In industry, a company profile and profile of the professionals involved in a project might also appear as appendices.