Guidelines for Technical Memorandum
Static Motor Test Lab, E-80

Each individual student is required to prepare and submit a technical memorandum that summarizes the team's process and results on the Static Test & Flight Model Lab. The memorandum is due on the class meeting two "class weeks" after completion of the Static Test & Flight Model Lab, not including any time during Spring Break. (For example, if a team completes the Static Test & Flight Model Lab on Wednesday afternoon, March 7, the tech memo is due on Wednesday, March 28, because of Spring Break.) You may use your Static Test & Flight Model lab report as the basis from your tech memo.

Introduction

A *technical memorandum* is a document that is specifically targeted to technically capable persons, such as practicing engineers or engineering managers, who are interested in the technical details of the project or task. Technical memoranda usually are brief and cover only a single topic. In this case, the technical memorandum will cover the procedures, results, and analysis (including sources and extent of errors) of the Static Test & Flight Model Lab, and is limited to four (4) single-spaced pages with 1-inch margins, using a font no smaller than 11 point. The length limit does not include the figures. However, excessive text on the figures will be included in the length limit.

Technical memoranda are used for a variety of topics in engineering practice. Examples include

- documenting a design,
- analyzing a particular technical problem,
- reporting on research or experimental results, or
- documenting technical matters for which the team seeks clarification or confirmation.

A technical memorandum should *not* be used to introduce a problem in general terms or to discuss a wide range of ideas and topics. In such cases, the memorandum is likely to lose focus and appear confusing.

Format for technical memoranda

The standard format used for a technical memorandum may vary with individual organizations, but the general structure includes

- an introduction,
- the main body of the memorandum,
- conclusions and/or recommendations,
- and references (as appropriate).

The *introduction* is a paragraph that clearly states the purpose and topic of the memorandum. An example from a GIS Database Design document is:

This memorandum provides an overview of the issues and processes associated with the development of the Stormwater GIS Database Design. Within this memorandum, the purpose and intent of the GIS structure and platform are described. These topics include the software platform, data types, data exchange, and maintenance.

The *main body* of a technical memorandum consists of the necessary paragraphs (often organized into sections with appropriate headings) to clearly and fully address the focus issue of the memorandum. This section should include data, equations, tables, graphs, etc. as needed. While a technically competent audience is assumed, the memorandum should define variables and other terms that may not be familiar to the reader. (That is, you needn't define π, but if you are using σ to represent stress, then say so.)

In the case of the Static Test & Flight Model Lab, you will probably want to have subsections in the main body describing the background (very briefly), key analysis, procedures followed in the experiment, results of the experiment, key experimental findings (including their interpretation), modeling technique and results of the modeling.

Conclusions and, where appropriate, *recommendations* should be presented in a paragraph or section. It should restate primary information, summarize findings, and allow a reader to see the important ramifications of the work presented. No new results should appear in the conclusions, but new explanation of the results should definitely be there.

If the memorandum cites particular sources (including quoted references or key works which define the approach taken), they should be listed in a section entitled *References*.

Basic rules of style

In general, the same rules of good writing apply to technical memoranda as any other technical writing. Several points to remember are:

- Limit the memorandum to a single, coherent topic or theme.
- Figures, tables, and equations should be numbered, and figures and tables should have captions *and* be referenced in the body of the text.
- Keep sentences short and direct (but see *The Science of Scientific Writing* for counterexamples).
- Use paragraph and section structures to organize the document into consistent and clear elements. Every paragraph should have a topic sentence expressing the primary idea of the paragraph.
- Use correct tenses – past tense for work done, future tense for work not yet done, and present tense for work in progress.
- If the document is very long (more than 10 pages), add a cover page and table of contents. Since your document is less than four pages, this rule is not applicable to your tech memo.

Grading

The technical memorandum will be graded for both technical content and proper use of technical English. The content grade will be 60% of the total, and the English grade will be 40% of the total.

Examples of technical memoranda

There are many examples of technical memoranda on the web. If you wish to see examples in your field, simply search Google for "Technical memorandum <YOUR FIELD>". Several examples include (copy and paste the fill link if clicking doesn't work):

http://udmp2010.wikispaces.com/file/view/Tech+Memo+Example+4.pdf

http://hydrogen-peroxide.us/uses-monoprop-steam-generation/NASA-Langley-Scout-Hydrogen-Peroxide-Decomp-Radio-Freq-Effects-1970.pdf

http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20070025193_2007025431.pdf