**Department of Chemical Engineering**

**Auburn University**

**Auburn Alabama, 36849**

**Description of Technical Memo Format**

Technical memos are used to communicate short reports where a formal technical report is not warranted. Typically they would be employed to communicate the solution to a posed question or assignment involving a technical analysis. Technical memos often include equations, figures and illustrations, tables, data and attached appendices. Due to their longer length, the memo’s text is broken into standard first level sections, and where appropriate, into second level sections depending on the complexity of the information being conveyed.

Technical reports must be clear and concise. Proper organization of the information is essential. A typical report is divided into the following sections,

* *Executive Summary*
* *Introduction* or *Purpose*
* *Theory and Analysis*
* *Results and Discussion*
* *Conclusions and Recommendations*
* *References*
* *Attachments and/or Appendices*

These sections are suitable for many circumstances but may be modified according to need. On the following pages, detailed information about the contents and function of each section is provided.

Section headings are aligned with the left-hand margin in a memo and may be simply capitalized and/or given bold or italicized font. Maintain the 12 point type size. Recognize that the format itself is also flexible; however, all the critical elements or information need to be included. The *Results and Discussion* and *Conclusions* sections are sometimes combined. The essential supporting documentation is included as *Attachments* or in *Appendices*.

In technical memos, the sentences and paragraphs are typically longer than in short memos that simply provide announcements or make requests.

For information about the format of citations, references, equations, figures, tables, and other related matters, please consult the appropriate departmental web resources.

On the next pages, the layout for a technical memo is provided. (Note: That layout conforms to all format issues such as font, margins, etc. and can be used as a template for starting Technical Memos.)

CHEN 1234 Experimental Chemical Engineering
Department of Chemical Engineering

Auburn University, AL 36849

**MEMORANDUM**

**Date:** May 18, 2008

**To:** Dr. George Tirebiter, Senior Engineer

**From:** Tony W. Sophomoro ***TWS*** 🡨 Note: Must be hand initialed

**Subject:** Format Specifications for Technical Memos 🡨 Note: Title is capitalized

**Executive Summary** – The *Executive Summary* provides a synopsis of the essential information. The client should only have to read the *Executive Summary*section to gain an understanding of the nature of the work performed and obtain the essential information. This section is independent of the remainder of the report. Do not refer to tables, figures, or equations presented in the main body of the report. Similarly, do not refer to information presented in the *Executive Summary* in the main body of the report. The three main issues to cover in this section are (1) introduction of the problem or issue being considered, (2) discussion of method or approach taken to solve the problem or issue, (3) listing of principle finding and results. Ideally, the *Executive Summary* should be written after the report itself.

**Introduction** or **Purpose** – Whereas the *Executive Summary* summarizes the whole report, the *Introduction* or *Purpose* of a technical memo 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. 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 information such as the history of the subject. Avoid the tendency to use the *Introduction* merely to fill space with sweeping statements that are unrelated to the specific purpose of your report

**Theory and Analysis** - The material presented in this section should proceed in a step-by-step logical format. It should begin with a brief synopsis of the fundamental theory that is most relevant to your problem, lead up to the equations and assumptions that you are using. In the case of experimental work it should contain an overview of the experimental procedures performed *and* the analytical procedures used to process the experimental data.

**Results and Discussion** - 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 the case of a *technical progress report*, the methods and findings may dominate the discussion; in a *final report* (generally most assignments are completed in a single report) the emphasize should be on evaluation. An error analysis and discussion of the validity of the results will also belong in this section. Often it may be advisable to break this down into two or three parts depending on the nature of the information being presented. You should provide a summary of the primary numerical results (i.e., bottom-line). Use tables and/or graphs as appropriate. Graphs and tables are very effective and efficient methods for presenting lots of information or large amounts of data or other details should be placed located at the end of the report as attachments (in the *Appendices*).

**Conclusions and Recommendations** – This section *summarizes* the results and draws appropriate conclusions. The following might be appropriate:

* Present an interpretation of the data – *what do the results mean in light of the problem being investigated?*
* Discuss the sources and relative magnitude of any significant errors.
* Present a prioritized list of actions to be taken and recommendations.

No new data (information) should be represented in this section. All information cited should have been developed in the *Results and Discussion* section.

**References –** allows the client to locate and verify information cited in the report.

**Attachments -** presents the details and documentation required to replicate the work. Arrange the attachments in some logical order, e.g., in order of reference or in descending order of importance. The different items will include, but are not necessarily limited to:

* Details of the procedures and any schematics or diagrams
* Data and analysis sheets – complete with headings, displayed equations, notes to lead the reader through the analysis.
* Sample calculations
* Detailed visuals (graphs and charts) and tables – these may be of intermediate as well as final results
* Original raw data – Absolutely necessary for most academic classes; may not be necessary in industry.

**Attachments:**

Attachment 1 – Comments Concerning the Format of Technical Memos

**Attachment 1 – Comments Concerning the Format of Technical Memos**

**Pagination:** All pages should be numbered at center bottom of the page with the exception of page 1. This should be accomplished using “View Footers” and inserting the page number code. To hide the page number of the first page, pull down the “Insert” menu, click “Page Numbers” and uncheck “show number on first page”.

**Font:** Times New Roman 12 or equivalent.

**Spacing:** Paragraphs are single spaced. A double space separates additional paragraphs within a section. Good memos make deliberate use of white space. Sentences should be separated by two space characters.

**Blocking:** The first line of each paragraph may be fully blocked at the left margin. It is not indented. Full block style is easiest to type because everything begins at the left margin. Full block style is useful, too, when a memo requires several levels of headings (such as in longer technical memo reports.) Text should be “left justified” not “fully justified” (that is, ragged on the right not even on the left and right).

**Date**: Always includes the date on which the memo was written. The date is never abbreviated. In the military style there is no comma. Unacceptable forms are: 9/1/03, Sept. 1, 2003, or 1 SEPT 03. The acceptable forms for writing the date are business style (September 1, 2006) or military/government style (1 September 2006.)

**To Line:** As most memos are filed for reference, complete information may be needed at a future date by another person. The “To line” includes the full name of the person to whom the memo is being sent. As a courtesy, the complimentary title -- Ms., Mr., Dr. --may precede the name. For clarity, the business title and often the department follow the name. If the writer plans to send the memo to several people, they are listed alphabetically (if they are equal in status in the organization) or by rank (with the highest ranking person first.)

**From Line:** The “From line” includes the full name, title and department of the writer. A complementary title is usually not used except for personal preference and to identify his/her gender (such as Pat and Leslie, which are names for both men and women). Then the complementary title is placed within parenthesis. Finally, on hard copies of the memo, the writer initials the end of the “From line” in blue or black ink to validate the report and resume responsibility for its content.

**Subject Line:** The subject line concisely (in a phrase with a maximum of seven words) previews the memo's subject. It contains sufficient information so the recipient has a clear idea of the message's purpose. Although all forms are equally correct, company policy may establish one as preferred.

**Copy To Line:** Send copies to anyone whose name you mention in the memo or who would be directly affected by the memo. These individuals should be identified at the end of the memo.

**Appearance and Binding:** The subjective effect on the reader of a neat and well-prepared report cannot be over emphasized. Reports should be neatly stapled in the upper left corner unless the report is exceptionally long (more than 20-25 pages) in which case it should be bound. Reports should not be three-hole punched.

**Grammar and Style:** The grammar and style should be consistent with good technical usage. See standard chemical engineering textbooks (for example, Geankoplis, *Transport Processes and Separation Process Principles)* or chemical engineering journals (for example, *Industrial and Engineering Chemistry* or *AIChE Journal*) when questions of format arise. Attachments to this memo discuss many of the basics of style.

Writing a technical report is a highly stylized art. Individuality in style, however commendable in principle, is for the experienced writer only. The text should avoid all usage of **first person** (we, us, our) as well as all usage of **second person** (you, your). While those are quite acceptable in a letter, the report should confine itself to **third person** only either active tense (“one can calculate the result by ....”) or passive tense (“the result can be calculated by .... “).

One should avoid unjustified changes in tense. There is seldom justification for changing tense in the middle of a paragraph. Since the background (*Executive Summary, Purpose, Theory and Analysis*) and/or experimental work are usually finished when a report is written, you should make references to these items in the past tense. Likewise, write the *Results and Discussion* and *Conclusions and Recommendations* sections in the present tense.