MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Engineering Communication

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

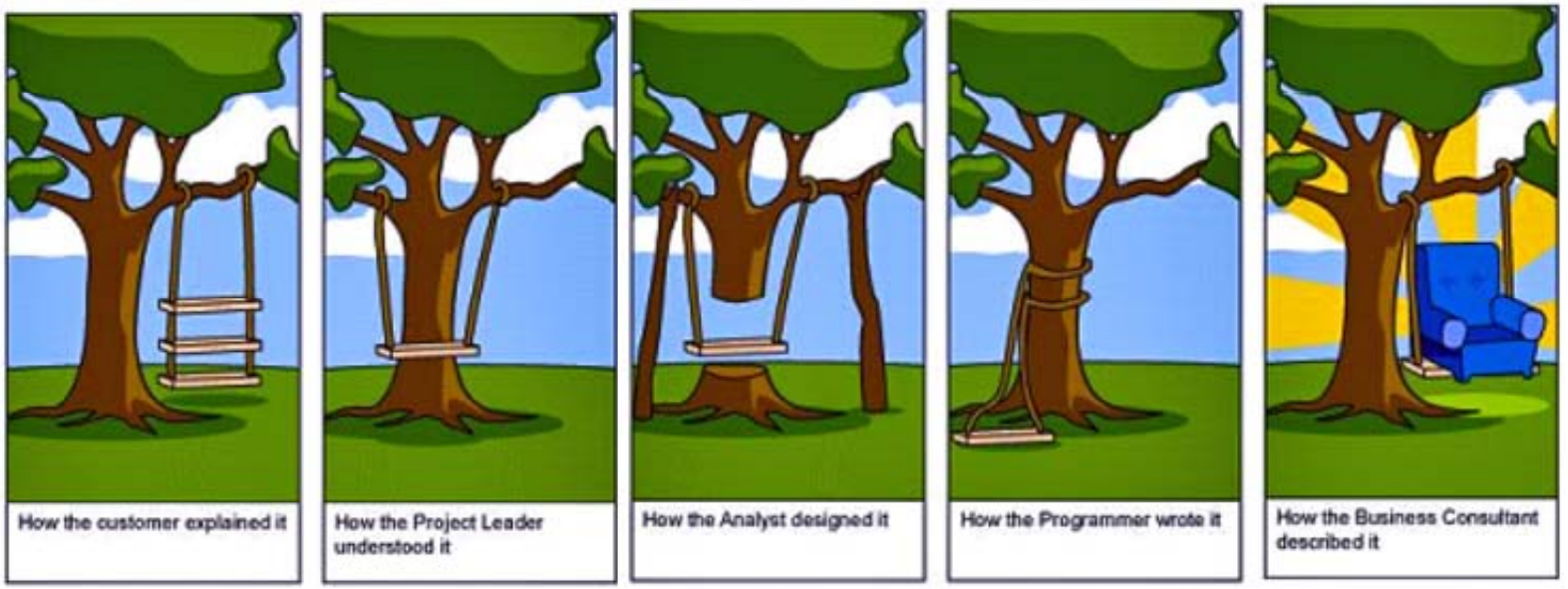
FILES

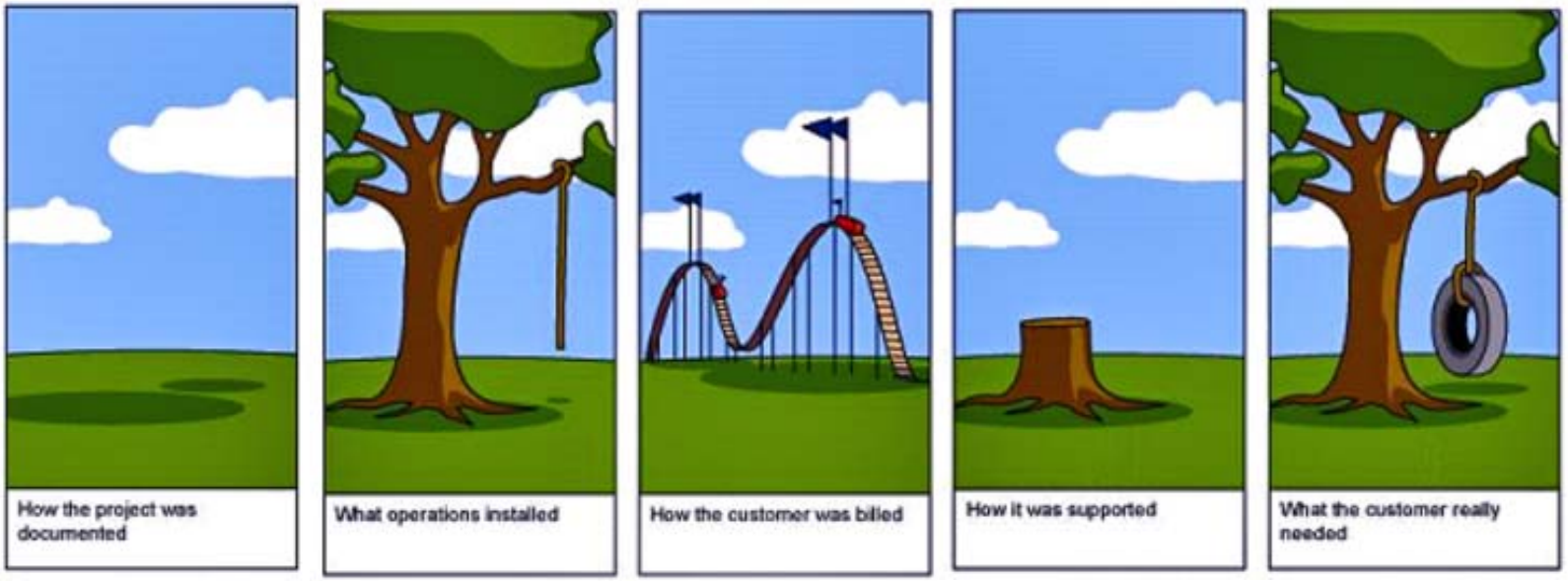
DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

"Communication" warm-up





MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

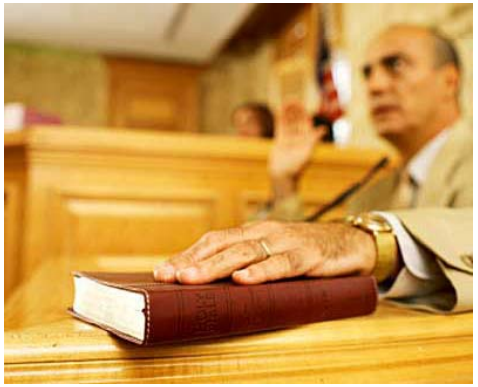
WEB

www.engr.mun.ca/~sbruneau/project/

Rationale:

An engineer needs effective communication skills in order to inform and persuade others, and to record progress and results of her or his work.

Normal business documents plus, clear and correct technical reports, drawings, diagrams, graphs, letters, memos, texts, emails and other. Writing and speaking effectively is critical to all transactions – engineers have a duty to do this well enough to be public authorities and to be relied upon in the court of law.



MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

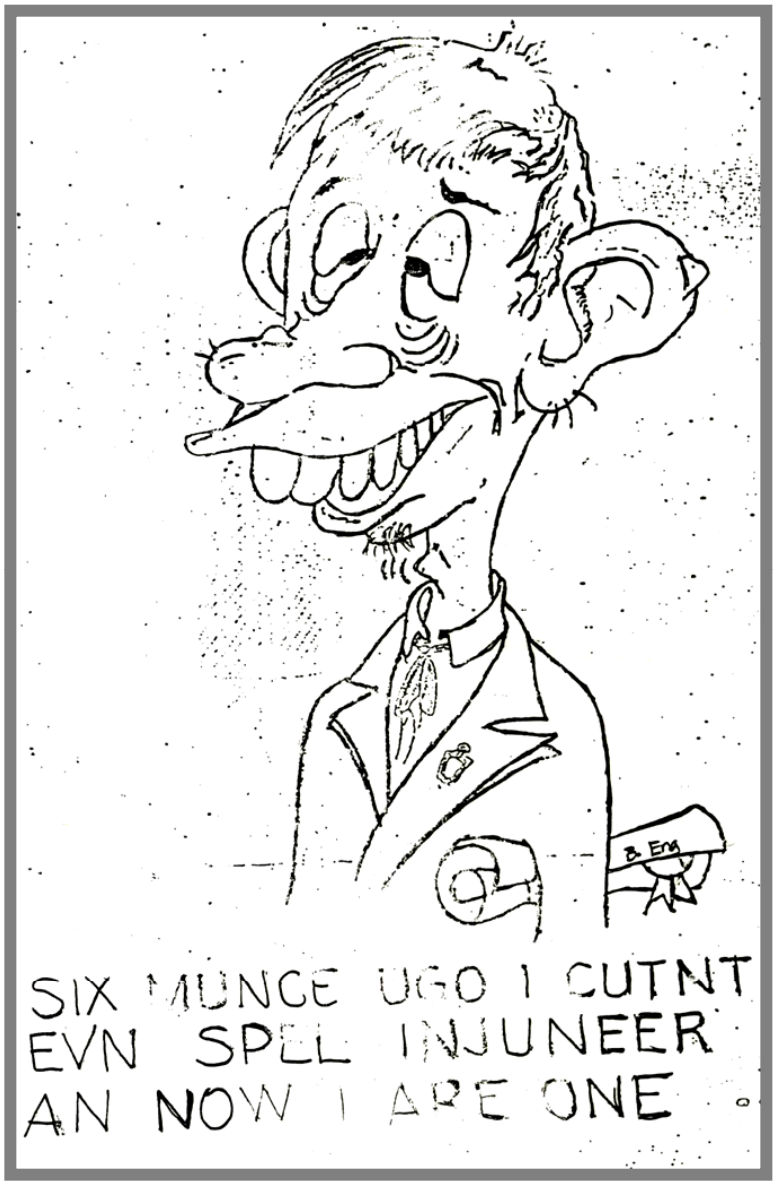
Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

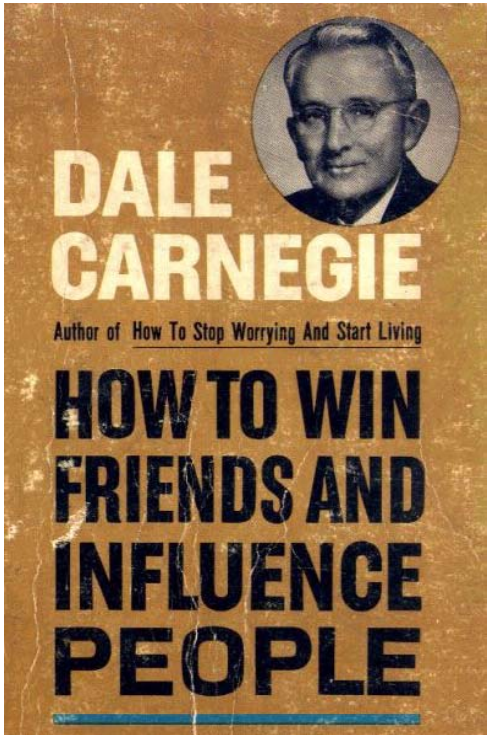
WEB

www.engr.mun.ca/~sbruneau/project/



I'm *trying* to avoid this

I've heard this is good



Dale Breckenridge Carnegie (originally **Carnagey** until 1922 and possibly somewhat later) (November 24, 1888 – November 1, 1955) was an American writer and lecturer and the developer of famous courses in self-improvement, salesmanship, corporate training, public speaking and interpersonal skills. Born in poverty on a farm in Missouri, he was the author of *How to Win Friends and Influence People*, first published in 1936, a massive bestseller that remains popular today. He also wrote a biography of Abraham Lincoln, titled *Lincoln the Unknown*, as well as several other books.

Carnegie was an early proponent of what is now called responsibility assumption, although this only appears minutely in his written work. One of the core ideas in his books is that it is possible to change other people's behavior by changing one's reaction to them.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Engineering Communications Five Main Sections

1. Technical Documents

Describes what kinds of documents engineers typically prepare and how to do so in a professional manner

2. Presentations

Give effective presentations - the type you'd like to listen to yourself!

3. Technical Writing Basics

Does this sound familiar? *" I hate English, I'm excellent in math, my teacher told me I'd do real good in engineering . . "* Well this section describes what you missed.

4. Formal Technical Reports

The most common and important engineering document – it is critical to the engineering practice.

5. Report Graphics

Principles for creating good graphics and their rules for use in documents.

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Section 1 Technical Documents

Covered here:

1. Letter
2. Memorandum (memo)
3. Email
4. Internet Posting
5. Specification Document (specs)
6. Bids and Proposals
7. Reports

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

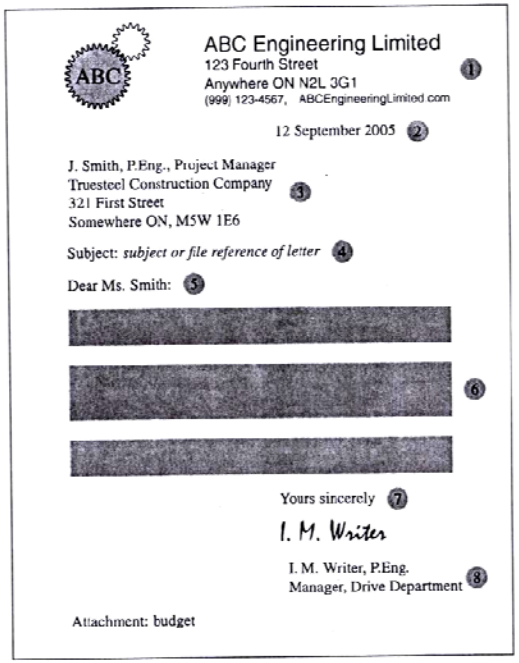
www.engr.mun.ca/~sbruneau/project/

Letters

Letters are used to communicate with people *outside* of the school, company or organization of the sender.

(When I get a formal letter from *inside* my organization it is usually really great news, or, very bad. If you get a formal letter from your parents, your principal, the courthouse, or your spouse – it is probably extremely bad news. . .)

The most important part of a technical letter is the requirement for **clarity and objectivity**.



ABC Engineering Limited
123 Fourth Street
Anywhere ON N2L 3G1
(999) 123-4567, ABCEngineeringLimited.com (1)

12 September 2005 (2)

J. Smith, P.Eng., Project Manager
Truesteel Construction Company (3)
321 First Street
Somewhere ON, M5W 1E6

Subject: *subject or file reference of letter* (4)

Dear Ms. Smith: (5)

[redacted] (6)

Yours sincerely (7)

I. M. Writer

I. M. Writer, P.Eng.
Manager, Drive Department (8)

Attachment: budget

SEBNOTE . . *OBJECTIVITY*

WIKIPEDIA
The Free Encyclopedia

Objectivity is a significant principle of journalistic professionalism. Journalistic objectivity can refer to fairness, disinterestedness, factuality, and nonpartisanship, but most often encompasses all of these qualities. Advocacy journalism is one alternative to objective journalism.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

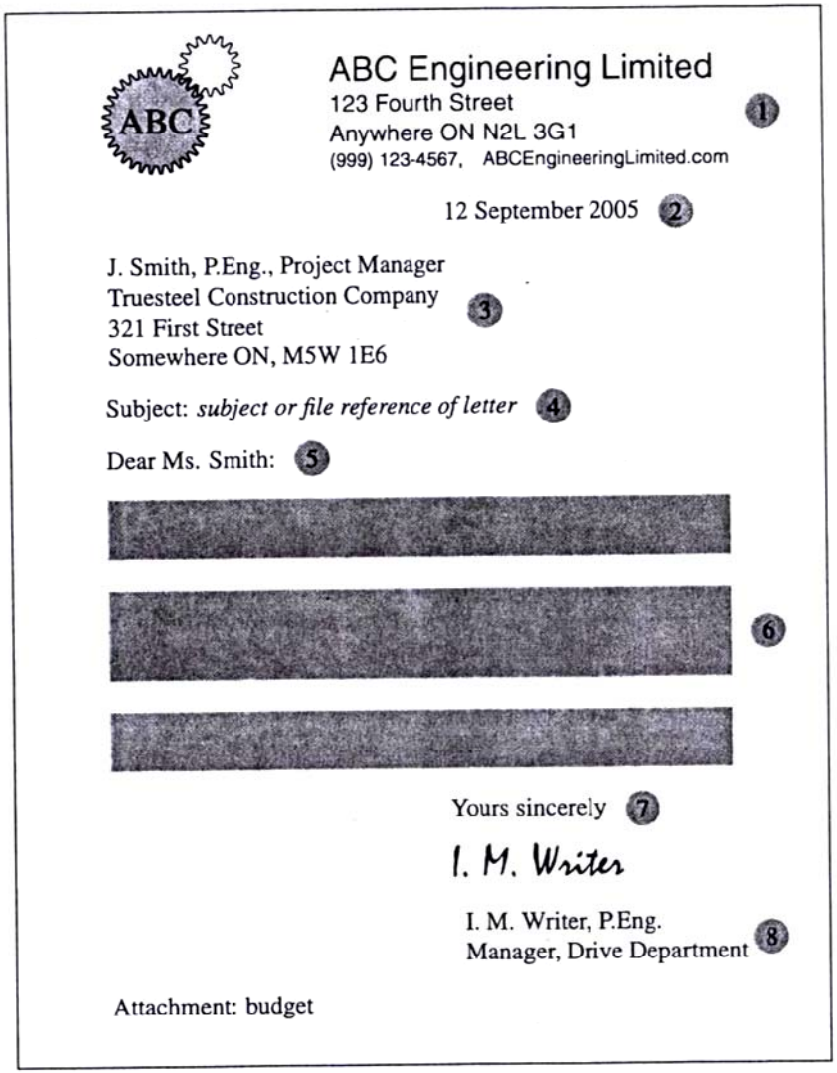
www.engr.mun.ca/~sbruneau/project/

A typical letter has eight basic parts:

1. Letterhead from your organization including return address
2. Date that the letter was signed
3. Address of the recipient
4. Subject line
5. Salutation
6. Body (begin with intro explaining the purpose of the letter, end with closing statement of follow-up actions desired or planned)
7. Complimentary closing
8. Signature of sender with printed name and title.

If attachments are included then a note is made at the bottom of the page.

If the letter is copied to others then it is noted on the letter as having been "carbon copied" (cc) to . . .



ABC Engineering Limited
123 Fourth Street
Anywhere ON N2L 3G1
(999) 123-4567, ABCEngineeringLimited.com

1

12 September 2005

2

J. Smith, P.Eng., Project Manager
Truesteel Construction Company
321 First Street
Somewhere ON, M5W 1E6

3

Subject: *subject or file reference of letter*

4

Dear Ms. Smith:

5

6

Yours sincerely

7

I. M. Writer

I. M. Writer, P.Eng.
Manager, Drive Department

8

Attachment: budget

Make sure to give the date as shown in the sample above – it is often ambiguous when abbreviated dates are given like: 01/12/2009 . . . this bugs me.

Memoranda (Memos)

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR
Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

WIKIPEDIA
The Free Encyclopedia

memorandum or **memo** is a note or communication that aids the memory by recording events or observations on a topic, such as may be used in a business office. The plural form is either *memoranda* or *memorandums*. A memorandum may have any format, or it may have a format specific to an office or institution.

In law specifically, a memorandum is a record of the terms of a transaction or contract, such as a memorandum of understanding, memorandum of agreement, or memorandum of association.

Dean Acheson famously quipped that "A memorandum is not written to inform the reader but to protect the writer".

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

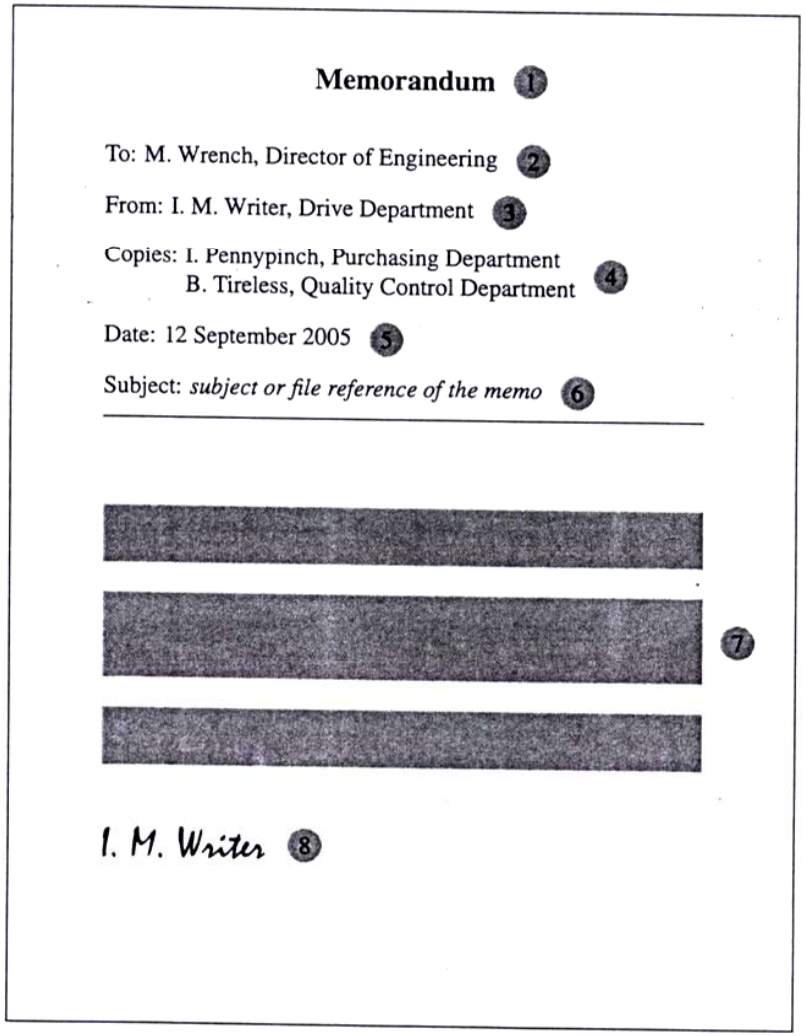
www.engr.mun.ca/~sbruneau/project/

Memoranda (Memos)

The word *memo* is a short form of *memorandum* and literally means "something to be remembered." However, normally the word simply means a written communication between people within a company or organization. Memos are used for all informal and formal written communication, except that letters may be preferred for very formal internal communication such as the establishment of a contractual obligation.

Example given here:

1. Heading "Memo" or "Memorandum"
2. "To" line
3. "From" line
4. "Copies" line
5. Date line
6. Subject line
7. Body
8. Signature (not always)



Memorandum 1

To: M. Wrench, Director of Engineering 2

From: I. M. Writer, Drive Department 3

Copies: I. Pennypinch, Purchasing Department
B. Tireless, Quality Control Department 4

Date: 12 September 2005 5

Subject: *subject or file reference of the memo* 6

7

I. M. Writer 8

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Email

WIKIPEDIA
The Free Encyclopedia

Electronic mail, often abbreviated to **e-mail**, **email** or **eMail**, is any method of creating, transmitting, or storing primarily text-based human communications with digital communications systems. Historically, a variety of electronic mail system designs evolved that were often incompatible or not interoperable. With the proliferation of the Internet since the early 1980s, however, the standardization efforts of Internet architects succeeded in promulgating a single standard based on the Simple Mail Transfer Protocol (SMTP), first published as Internet Standard 10 (RFC 821) in 1982.

Modern e-mail systems are based on a store-and-forward model in which e-mail computer server systems, accept, forward, or store messages on behalf of users, who only connect to the e-mail infrastructure with their personal computer or other network-enabled device for the duration of message transmission or retrieval to or from their designated server. Rarely is e-mail transmitted directly from one user's device to another's.

While, originally, e-mail consisted only of text messages composed in the ASCII character set, virtually any media format can be sent today, including attachments of audio and video clips.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Steve Bruneau's personal advice on email:

Use proper grammar and spelling – internet abbreviations are mostly shallow and meaningless - if you want someone to be your BFF then don't be so lazy and bored that you cant be bothered to even type it out!

Include full name and contact info – preferably in a signature set so you don't have to bother with it every time. Send a message to yourself to make sure it looks right .

Avoid bouncing smiley faces and frivolous trimmings that will probably clog up the message and arrive as viral-looking, irritating attachments

Be clearly polite and include salutations fore and aft

ALWAYS assume that your adversaries will get and read the message.

Never send critical, disagreeable or angry messages, at least until you have read it, waited a day, re-read it and reconsidered.

Don't just send a message because

" they had it coming . ." or,

"I'm sick and tired of . ." because

" Those bastards . . ." you refer to - they'll get it – somehow, they'll end up with it.

I always ask the golden e-rul:

" what is the desired outcome of this message and is this message the best way of obtaining that desired outcome?"

Text messaging – ditto

Like email, electronic messaging is widely used, and messages sent through company facilities may be recorded like any other business document or communication. The ability to send quick messages can be a great convenience but can also be cause for sober reflection about remarks that were sent too hastily. Never send a message that you would not want your fellow employees or other colleagues to see.

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

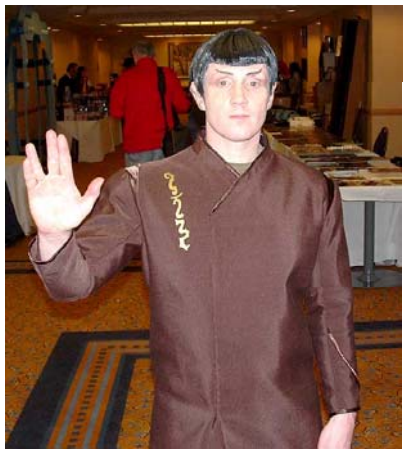
WEB

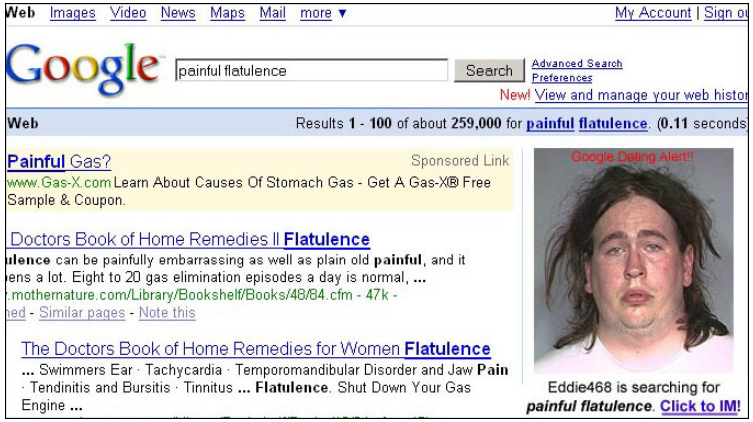
www.engr.mun.ca/~sbruneau/project/

Internet postings:

The Internet provides a means by which anyone can post opinion, commentary, fantasy, practical information, or indeed, anything that can be written. To say that something has been "posted" is an apt description, since placing a document on the Internet is analogous to posting a piece of paper on a bulletin board. The posting may be available worldwide to anyone or to a more restricted audience, depending on reading habits or restrictions placed on membership of reader groups.

It is essentially impossible to remove or suppress a document that has been posted on a web page or in a news group. You should assume that anything you post may be read by a future prospective employer. Some companies seek out employees by looking for postings by people who have used and understood their products. Others search for postings of job applicants in order to find information about them prior to an interview. It goes without saying that if you have been unhappy with a company or individual, then venting your frustration on the Internet could lead to great trouble, since the laws of slander apply as for any other publication. Restricting the posting to a social networking forum may provide no effective protection. Post on the Internet only material that you would be willing to print and pin to the wall of your workspace.



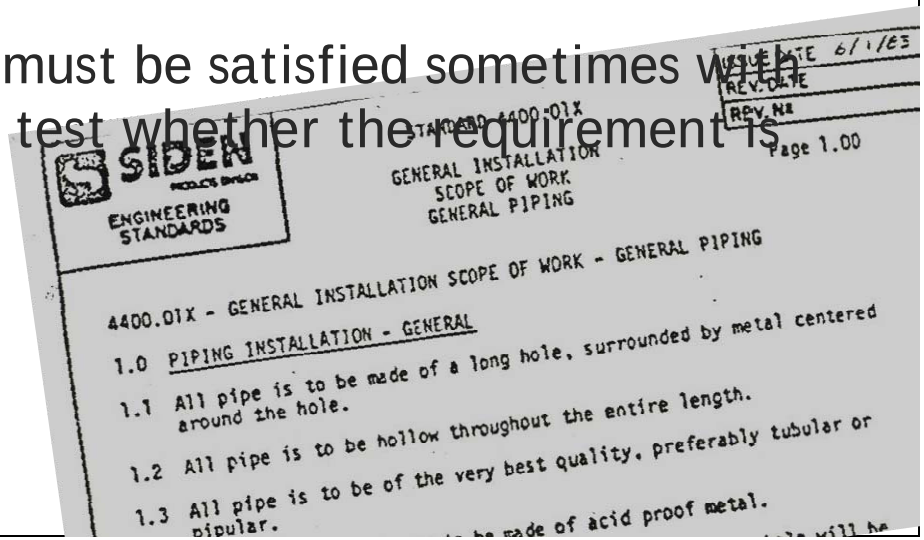


Specifications (document)

A specification document is basically a list of criteria or tests that determine the characteristics required of a desired product or process. The “spec” contains the criteria that the desired product or service must satisfy, and form part of a contract between the client and the provider. Often the “spec” may contain increasingly detailed information as one proceeds to smaller components and sub-components within a system and thus the document can be quite lengthy. A spec usually contains:

1 Introduction and scope – general purpose of the product or service required

2 List of requirements – that must be satisfied sometimes with the procedures to be used to test whether the requirement is satisfied.


SIDEN
ENGINEERING STANDARDS
GENERAL INSTALLATION
SCOPE OF WORK
GENERAL PIPING
Page 1.00
4400.01X - GENERAL INSTALLATION SCOPE OF WORK - GENERAL PIPING
1.0 PIPING INSTALLATION - GENERAL
1.1 All pipe is to be made of a long hole, surrounded by metal centered around the hole.
1.2 All pipe is to be hollow throughout the entire length.
1.3 All pipe is to be of the very best quality, preferably tubular or
made of acid proof metal.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text “Intro to Prof. Engin. In Canada 3rd ed.” Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

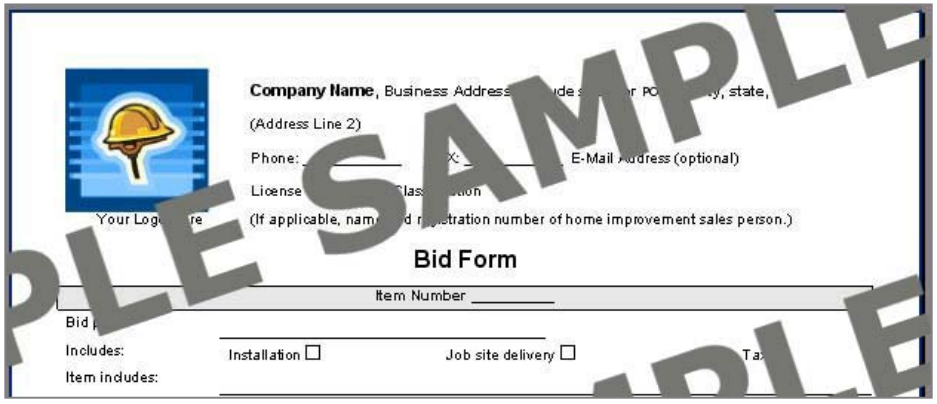
Bids and Proposals

Bids and proposals are offers from engineers to provide services. A *bid* is an offer to provide specified services; a *proposal* typically suggests a means of meeting a need that has not been specified precisely and offers to provide the required service.

Thus, a potential client may send a "request for quotation" to eligible bidders, including specifications for the job to be done. The response to the client is a bid document, which states how the engineering work will comply with the specifications and any exceptions that are proposed, together with a price at which the company is willing to do the work. Other information may be required by the client or offered by the engineer, such as the qualifications of the individuals who will perform the work. Government agencies tend to have strict rules for the format and timing of bid documents.

When required engineering services are not precisely defined, and there are several possible solutions, then a "request for proposal" is issued. The engineer is then free to outline a solution and to offer to provide it. Since a proposal is in part intended to convince a prospective client of the competence of the engineering provider, the proposal accompanied by a letter of transmittal as discussed for engineering reports in Chapter 8.

Bid and proposal documents, when accepted, may form part of a legal contract that binds the client and engineering group together for the project.



MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_1.ppt
DESPRO_1.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

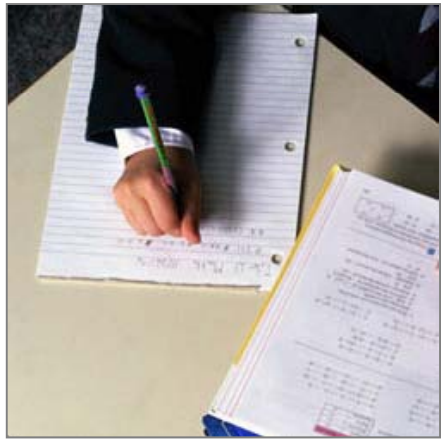
www.engr.mun.ca/~sbruneau/project/

Reports

Reports may be produced in many forms. Usually the production of the document has been commissioned by a superior or client, either to answer specific questions, to investigate a situation in the interest of the client, or simply to provide a record of an event or situation. Therefore, reports may be technical or non-technical, formal or informal, depending on the circumstances.

Formal technical reports may be the official record of a company's conclusions or actions, and may have to withstand the scrutiny of a legal proceeding, for example. Chapter 8 discusses formal technical reports typically required within a company, by a client contracting for engineering services, or from a student returning from an industrial internship or work-term.

We will follow the Canadian Engineering Textbook here but note that there are many on-line resources such as the one identified here for the University of Sussex in the UK



Reports – components of the writing

In the following, the logical structure of reports is described, together with their physical structure. This section then discusses experimental and laboratory reports, evaluation reports, and progress reports.

Logically, there are three main components in a report:

Introduction

1. The introduction gives the purpose and background of the work presented in the report. The questions being investigated are posed, together with background information required by the intended readership.

Detailed content

2. The main body contains the investigations, results, or analysis satisfying the purpose of the report, in as much detail as the intended readers are expected to require. The material is presented in a clear, logical sequence, using sections and sub-sections as necessary.

Conclusions

3. The Conclusions section gives the answers to the questions posed in the introduction. In a long report these answers may have appeared in the detailed content and are summarized in this section; in a shorter report the conclusions supported by the analysis are stated. It should be possible to pair each conclusion with a question posed in the introduction.

Fairly Obvious but important to mention because sometimes reports blur the boundaries and they shouldn't. The idea is to make it as easy as possible for the reader to understand

1. Introduction – at the end of it state where you are.
2. Content– at the end of it state where you are.
3. Conclusions

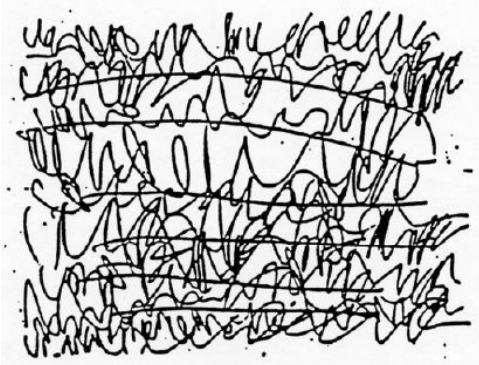


Figure 3. Scribble (with underlinings often found to indicate boundaries) used by child who had previously written with invented spelling.

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Reports – physical parts

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

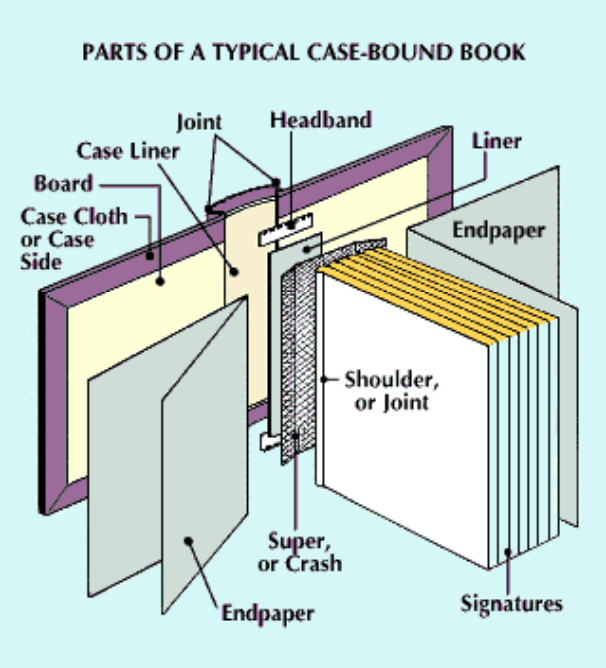
www.engr.mun.ca/~sbruneau/project/

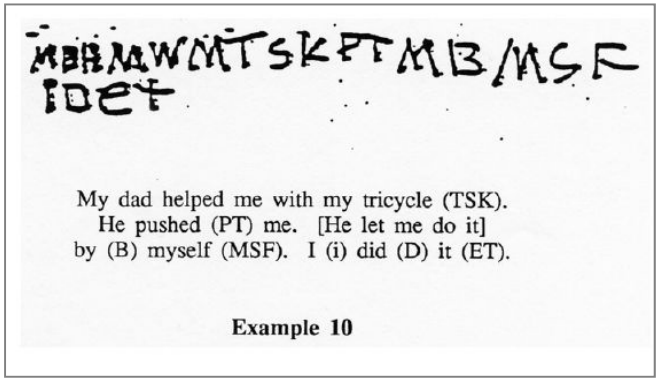
The physical components of many reports are similar to those of a book:

Front matter 1. The front mater contains components such as the title page and table of contents, which introduce and index the document. In the past, the front matter could be composed only after the body of the document was finished and the page numbers of the body had been determined. Therefore, the front matter had to be given a separate set of page numbers, which were printed in lowercase roman numerals. This numbering tradition persists, even with the use of computers for report production.

Body 2. The body material is divided into numbered sections, beginning with the Introduction section and typically ending with the Conclusions section, with other sections and sub-sections as necessary to present the material clearly and logically to the intended audience.

Back matter 3. At the back of the report there may be material that supplements the contents of the body but that is not essential for reading the report. The back matter may also contain material that is too voluminous to put in the body or that would otherwise break up the flow of the body. Typically the back matter contains a list of references and possibly appendices. Appendices are structured like report sections and are normally labelled with the letters A, B, . . . , rather than numbered.





MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Reports

Lab reports written according to the principles of the scientific method as follows

Title page	Department name, course name and number, professor name, student name and number or other required identification, report title, date.
Summary	A summary in less than one page of the report contents and conclusions.
Contents	A list of the report section and sub-section titles and numbers, with page numbers.
List of figures	The figure numbers and captions, with page numbers.
List of tables	The table numbers and captions, with page numbers.
1. Introduction	The purpose and circumstances under which the experiment was conducted and the report written. The questions to be answered in the report must be posed.
2. Theory	The theoretical concepts required to understand the experiment and the hypotheses that are to be tested.
3. Equipment	A description of the equipment required, given in sufficient detail to duplicate the setup in equivalent circumstances.
4. Procedure	The methods used to obtain the observations and data recorded in the report.
5. Results	The data recorded with qualitative observations as necessary.
6. Analysis	Computations with graphs or other information required to compare the data with the hypotheses tested.
7. Conclusions	The answers to the questions posed in the Introduction.
References	Author, title, and publication data in a standard format for the documents cited in the report.
Appendices	Large tables, diagrams, computer programs, or other material that is not meant to be read as part of the body of the report.

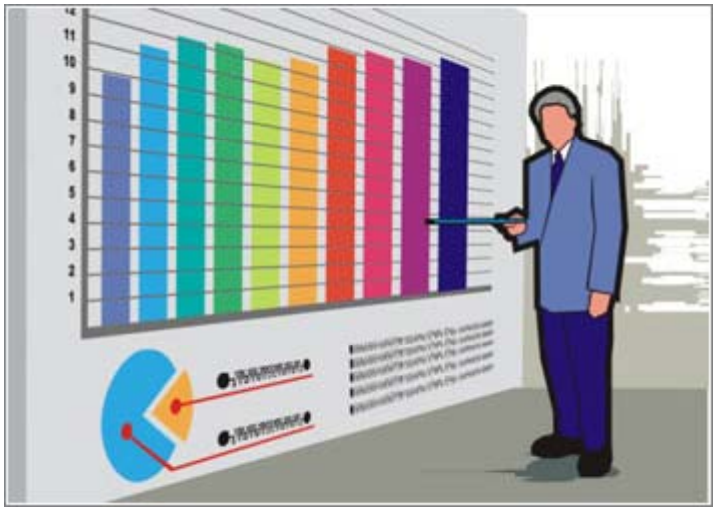
Report – Other report types

Evaluations Product or process evaluations may be required for product improvements, to investigate unexpected performance, or to judge the qualities of an alternative or competing product. In all cases, the introduction must carefully state the criteria by which the evaluation is being made, and the conclusions must compare performance to the stated criteria.

Feasibility reports Feasibility reports are similar to evaluations but discuss projected or hypothetical products or processes, rather than those that are available. Prototypes of proposed products are sometimes the subject of feasibility reports, in order to predict the performance of the final product.

Evaluations and feasibility reports have a common structure: the performance of the whole is determined by examining its parts, comparing their performance with respect to stated criteria, and reaching global conclusions which are presented logically, for example, by a table such as described in Section 15.5.1.

Progress reports During an engineering project, it may be necessary to send reports to company management or to clients, with the object of recording what parts of the work have been completed or are underway. These reports may also be written as an internal record of steps undertaken and accomplished. The primary question to be answered is whether the actual progress corresponds to the budgeted time, financial and physical resources, and human expertise. The content of these reports can form a partial draft of the final report.



MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

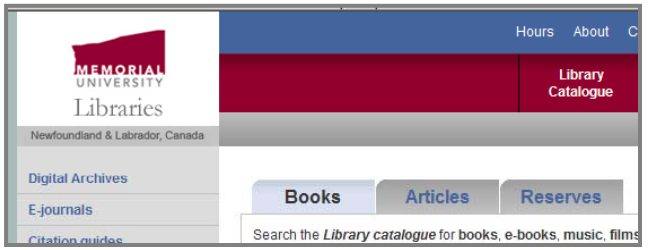
FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Engineering Communication



Finding Information

1. Libraries - Books, periodicals, journals, reports
2. Manufacturers – point of source
3. Vendors – distributors, wholesale, retail
4. Standards - CSA
5. Patents - CIPO
6. Reference books - engineering handbooks
7. Internet – precautions required but rich for sure

Get organized, be disciplined, classify various info and resources and keep track

"INFORMATION HIGHWAY? YOU MUST HAVE TAKEN A WRONG TURN. THIS IS THE INSIGNIFICANT TRIVIA DIRT ROAD."

Presentations

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

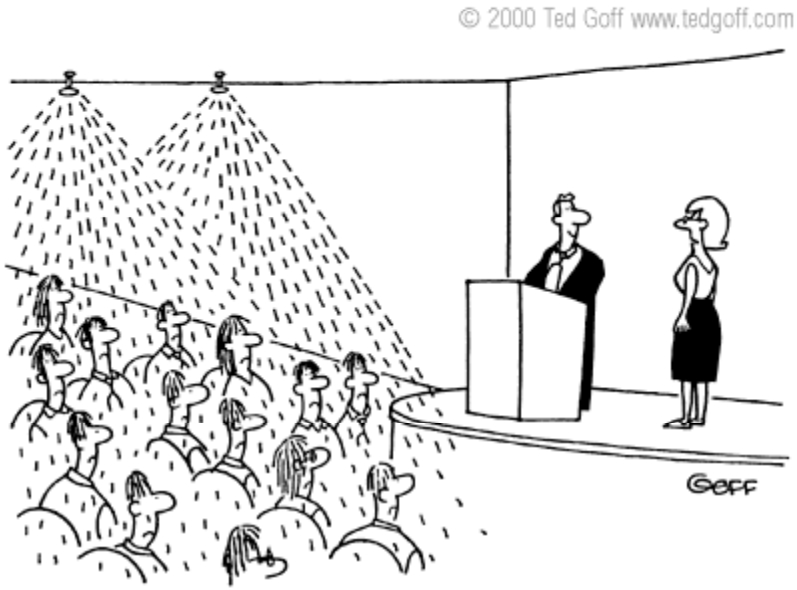
WEB

www.engr.mun.ca/~sbruneau/project/

Text lists these essentials

1. Identify your audience
2. Identify your message
3. Repeat three times
4. Vary your presentation
5. Present Professionally
6. Use visual aids
7. Prepare handouts
8. Practice
9. Don't present too much

PHOTOGRAPH BY SEAN LOCKE



"You're not allowed to use the sprinkler system to keep your audience awake."

Presentations

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Guidelines for Giving a Truly Terrible Talk

"For God's sake, Edwards. Put the laser pointer away."

Presentations

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Strict adherence to the following time-tested guidelines will ensure that both you and your work remain obscure and will guarantee an audience of minumum size at your next talk. Continuity of effort may result in being awarded the coveted 5:00 P.M. Friday speaking time at the next national meeting.

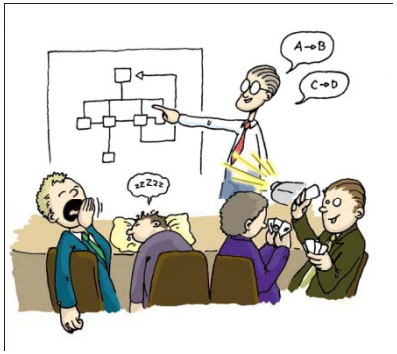
Slides

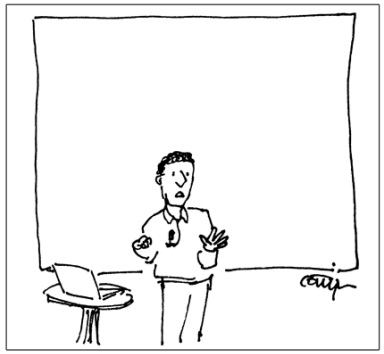
1. Use lots of slides. A rule of thumb is one slide for each 10 seconds of time allotted for your talk. If you don't have enough, borrow the rest from the previous speaker, or cycle back and forth between slides.
2. Put as much information on each slide as possible. Graphs with a dozen or so crossing lines, tables with at least 100 entries, and maps with 20 or 30 units are especially effective; but equations, particularly if they contain at least 15 terms and 20 variables, are almost as good. A high density of detailed and marginally relevant data usually preempts penetrating questions from the audience.
3. Use small print. Anyone who has not had the foresight to either sit in the front row or bring a set of binoculars is probably not smart enough to understand your talk anyway.
4. Use figures and tables directly from publications. They will help you accomplish goals 2 and 3 above and minimize the amount of preparation for the talk. If you haven't published the work, use illustrations from an old publication. Only a few people in the audience will notice anyway.

Presentation

1. Don't organize your talk in advance. It is usually best not to even think about it until your name has been announced by the session chair. Above all, don't write the talk out, for it may fall into enemy hands.
2. Never, ever, rehearse, even briefly. Talks are best when they arise spontaneously and in random order. Leave it as an exercise for the listener to assemble your thoughts properly and make some sense out of what you say.
3. Discuss each slide in complete detail, especially those parts irrelevant to the main points of your talk. If you suspect that there is anyone in the audience who is not asleep, return to a previous slide and discuss it again.
4. Face the projection screen, mumble, and talk as fast as possible, especially while making important points. An alternate strategy is to speak very slowly, leave every other sentence uncompleted, and punctuate each thought with "ahhh," "unhh," or something equally informative.
5. Wave the light pointer around the room, or at least move the beam rapidly about the slide image in small circles. If this is done properly, it will make 50% of the people in the front three rows (and those with binoculars) sick.
6. Use up all of your allotted time and at least half, if not all, of the next speaker's. This avoids foolish and annoying questions and forces the chairman to ride herd on the following speakers. Remember, the rest of the speakers don't have anything important to say anyway. If they had, they would have been assigned times earlier then yours.

If the above doesn't suit your style or goals, then perhaps the following alternate guidelines will be more useful.





Now, on this slide, may I direct your attention to the flashy animation and cool transition effects... because I worked really, really hard on them.

Presentations

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Make a Better Presentation

Slide Preparation

General Principles

1. Slides must be well designed, simple, and readable by everyone in the audience. It is worthwhile to use professional slide preparation services, if available.
2. Use as few slides as are really needed and can be discussed in the time allotted. As a general rule, one slide for each 1 or 2 minutes of presentation is all that will be effective.
3. Devote each slide to a single fact, idea, or finding. Illustrate major points or trends, not detailed data. Do not show long or complicated formulas or equations. Each slide should remain on the screen at least 20 seconds.
4. Use the absolute minimum number of words in titles, subtitles, and captions. Remember that standard abbreviations are acceptable.
5. Use block lettering. Do not use serifs or italics. A rule of thumb for the minimum height of readable lettering (size) is 3 millimeters on the finished slide. Do not make slides from illustrations or tables that were prepared for publication. They are rarely satisfactory. A good way to test your material is to stand away 1 foot for every inch of original copy width. If you can't read it from that distance, then your audience will not be able to read it either when it is projected.
6. Color adds attractiveness, interest, and clarity to slide illustrations and should be used whenever possible. If you use color, remember that contrasting colors are easier to see.
7. Use 2" x 2" paper or plastic mounted slides, designated for a 35 mm slide projector. Be sure that they are clean and in good physical condition.
8. Critically examine every slide, and try out the entire set under adverse light conditions before using them at a meeting. It is sometimes impossible to provide excellent light conditions at meetings.
9. Mark a large positioning dot or make a notch in the lower left hand corner of each slide when it is laid flat so it may be read; rotate 180° for loading into a carousel. A notch makes it easy to see that all slides are in correct position in a tray. Number every slide in proper sequence, and give them to the projectionist exactly as you wish them shown. **This is important, because slides may be dropped or become disarranged. Come a few minutes before the start of the session to give the projectionist time to arrange your slides for presentation.**

"O.K., step away from the laptop and hold up your end of the conversation."

Presentations

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Tables

1. Do not use more than three or four vertical columns; six to eight horizontal lines. Any more and the information will not be readable.
2. Do not use ruled vertical or horizontal lines. They distract the eye and clutter the slide.
3. Whenever possible, present data by bar charts or graphs instead of tables. Colored graphs are very effective.

Graphs

1. Generally, do not use more than one or two curves on one diagram; three to four as maximum but only if well separated.
2. Label each curve; do not use symbols and legend.
3. Do not show data points unless scatter is important.

Presentation

1. Write the talk out in advance so that your ideas are logically organized and your points clear. At the very least, write out a detailed outline. Cover only the few essential main points, and leave the details for your publication.
2. Rehearse. If possible, give your talk to one or more colleagues, and ask them for suggestions for improvement. If the talk runs longer than the allotted time, eliminate the least essential material and rehearse again.
3. Speak slowly and clearly. Word choice should be simple: Use active words, short sentences. Words should reinforce visual material.
4. Out of consideration for the other speakers and the audience stay within your allotted time. This is essential to ensure adequate time for questions and discussion and adherence to schedule.
5. Use the public address system and speak into the microphone toward the audience at all times. If you need to see what is being shown on the screen, have pictures or copies at the speaker's rostrum.

For more information on preparing a technical slide show, the most detailed and possibly the best manual yet written, especially for technical and scientific slide users, is *35-mm Slides: A Manual for Technical Presentations* by Dan Pratt and Len Ropes, published by the American Association of Petroleum Geologists, 1978, 32 pages, $5.00 each; order from AAPG, Box 979, Tulsa, OK 74101.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

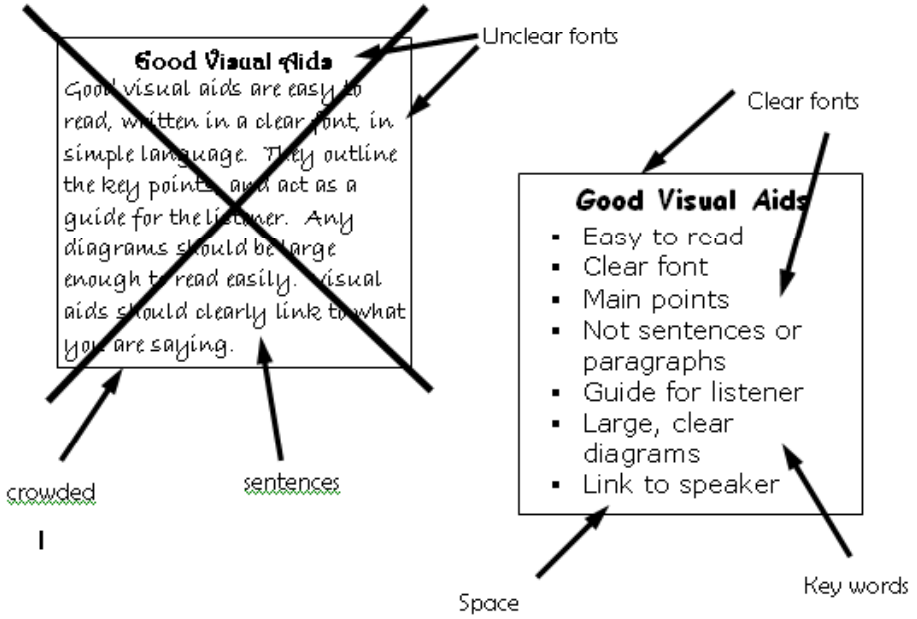
WEB

www.engr.mun.ca/~sbruneau/project/

Presentations

Pointers for Visual Aids

- Introduce the talk
- Check readability
- Simplify
- Check math
- Avoid too many lists
- Create custom diagrams



MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_2.ppt
DESPRO_2.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Engineering Communication

Warm up for effective communication methods . ..

Text

http://lostintransit.org/archives/000569.html

Text and pics

http://quamut.com/quamut/how_to_fold_everything

Video visual only

http://www.youtube.com/watch?v=fZKKrUXjzDY

Text and pics w/ video link

http://au.lifestyle.yahoo.com/b/better-homes-gardens/6023/how-to-fold-a-t-shirt-in-3-perfect-folds/

Text pics audio and video

http://www.wikihow.com/Fold-a-T-Shirt-in-Two-Seconds

List of options

http://www.themrsg.com/2008/09/how-to-fold-t-shirts.html

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Technical writing

The LAW :

- Clear
- Coherent
- Unambiguous

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR
Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Specific hints for better technical writing:

Clarity and brevity – communicate information that tells the reader what they should know

Correct terms – avoid jargon and slang – use terms correctly define specialized ones if they are to be used.

Specific terms – avoid generalized terms and use specific unambiguous ones. For instance "good" and "pretty good" do not communicate specific information "the device met all the required performance criteria but failed when exposed to operational loads 10% higher than the design specification"

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Hints for better technical writing (continued)

Spelling and punctuation – required for the work to be confidence inspiring.

Tense – Indicates the time of action. The most appropriate for technical writing are past tense and present. Do not use future tense to describe something coming up later in the report.

Passive and active voice – active is emphatic specific and tells you more information if it is needed. Use the passive voice if the doer is unimportant to the information you are telling.

Person – first (I), second (you) and third, (he, she, it, they...)
Most reports are independent of the observer and therefore should be in the third person. Often it is necessary to use first person to take responsibility for something like recommendations. The second person is implicit in instructions, specifications etc.

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Punctuation

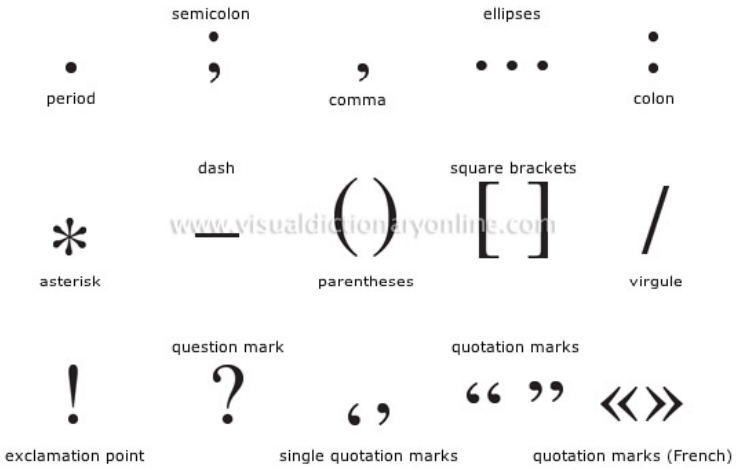
Period – sentence ending and abbreviations

Comma – slight pause where independent clauses are joined by conjunction.

Semicolon – longer than a comma, shorter than a period

Colon – introduces a list as a substitute for "for example". Also used to introduce a formal statement.

Hyphen – joins adjectives, compound nouns and breaks long words when a return in a written line is required



COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Punctuation (continued)

Dash – Shows sudden interruption in thought

Question Mark – full stop at the end of a direct question. Indirect questions do not need them "The student asked if he could drop the course"

Exclamation point – full stop at the end of sentence expressing surprise or strong feeling "Sit down and go back to sleep!" It is rarely used in formal writing.

Apostrophe – two uses – marks possession of something as in; The engineer's ring. Also it replaces dropped letters in abbreviations doesn't it.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Punctuation (continued)

Quotation marks – enclose direct quotes and sometimes for reference titles.

Brackets – added information for editorial clarity

Parentheses – enclose ideas of secondary importance – sentence must work without the information inside.
Ellipsis – used in place of omitted words and . . .

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Parts of speech:

Noun – names things and qualities Proper nouns name people and places and have the first letter capitalized.

Pronoun – takes place of a noun

Verb – action and state words; run, jump, be

Adjective - modifies nouns

Adverb – modifies verbs

Preposition – links things in sentences
– usually nouns and pronouns; in, on, of

Conjunction – join words or phrases.

Interjection – express emotion; oh! Duh!

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Writing errors:

Sentence fragments –

"The explosion was huge. Bits went everywhere."

Dangling modifiers -

"Even though boredom had set in, the prof continued lecturing to them"

Comma splices and run-on sentences -

"The exam was quite difficult and a lot of people failed."

Writing errors (continued)

Superfluous commas -

"Perhaps, you fell asleep in class."

Subject verb disagreement

"Each student from the civil class were excused"

Adverb and adjective confusion

"we're real close to the midterm break"

"I see by your résumé that you're a friend of mine."

Writing

The Greek alphabet in technical writing

Technical writing often requires the use of mathematical formulas that contain Greek letters. Use these letters sparingly, particularly if the report is intended for readers without mathematical expertise. In addition, do not use the Greek letters of identical appearance to English letters. Consult reference [4] for detailed advice about writing mathematics. The Greek alphabet is shown in Table 7.2.

The Greek alphabet, showing English equivalents. The meaning attached to each symbol varies with the context.

Greek letter		Greek name	English equivalent	Greek letter		Greek name	English equivalent
A	α	alpha	a	N	ν	nu	n
B	β	beta	b	Ξ	ξ	xi	x
Γ	γ	gamma	g	O	o	omicron	ŏ
Δ	δ	delta	d	Π	π	pi	p
E	ϵ	epsilon	ĕ	P	ρ	rho	r
Z	ζ	zeta	z	Σ	σ	sigma	s
H	η	eta	ē	T	τ	tau	t
Θ	θ	theta	th	Υ	υ	upsilon	u
I	ι	iota	i	Φ	ϕ	phi	ph
K	κ	kappa	k	X	χ	chi	ch
Λ	λ	lambda	l	Ψ	ψ	psi	ps
M	μ	mu	m	Ω	ω	omega	ō

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Writing

5. Find a grammatical error or punctuation error in the body of this book, and write a letter of reprimand to the authors. Be polite but firm.

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_3.ppt
DESPRO_3.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Technical Report Writing

The most important medium of communication in the engineering profession.

My advice:

Use the formal structure as per these notes and chapter 8 in the text and treat the physical report as a design challenge.

Though details vary and some components are not necessary in all reports – the fundamentals remain the same for virtually all documents.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Front Matter – numbered with lower case roman numerals starting at the title page

Body of report – numbered beginning with introduction

Back Matter – numbering continued from the body

Front cover

Title page

Letter of transmittal

Abstract

Key words

Contents

List of figures

List of tables

List of symbols

Preface

Acknowledgements

Summary or executive summary

Introduction

Analysis

Conclusions

Recommendations

References

Bibliography

Appendices

Italicized items may not be required in some instances

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

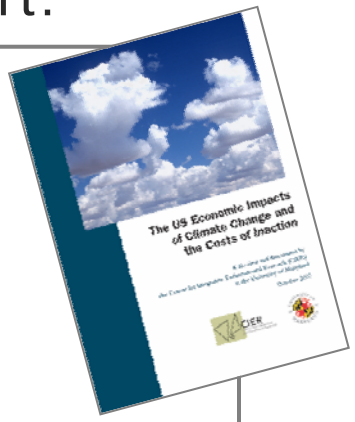
Cover

Title

Author's Name

Date of Publication

Authors affiliation, company name



Title Page

Title

Author's Name and address

Date of Publication

Name and affiliation of the person for whom the report was prepared

Title needs to be descriptive enough for the reader to know the purpose of the report. Choose precise words.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Letter of transmittal

Refer to the report by title

Identify the circumstances under which the report was prepared

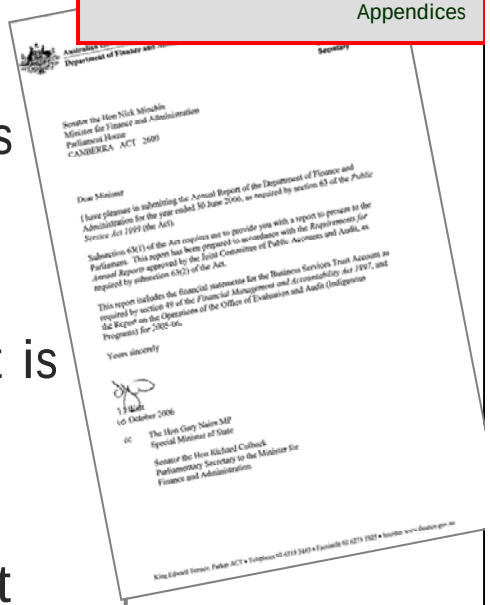
Identify the purpose of the report.

Abstract

Comprehensive summary so that researchers can know what the report is about without going inside.

Abstract should be written AFTER the report is written

Usually contains report purpose, methods, results and conclusions. They are usually not required for privately commissioned reports.



Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Key words

Not commonly used outside of published research articles, journals conference proceedings

Table of Contents

Essential component of all reports.

Headings and subheadings must be shown in exact form in which they appear in report. Front matter is also listed with correct page numbering.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

List of figures, tables, symbols, and definitions

Assist the reader in finding specific items distributed throughout the report, and define the often-numerous abbreviations, symbols and acronyms used throughout.

These lists are not always included in short reports. Sometimes glossaries placed at the rear of the report are used to define symbols.

Preface

Contains a message to the reader – that may be in the letter of transmittal in some instances. The preface may explain how a reader should proceed through the report, skip certain parts if they have particular needs, and may also provide acknowledgements if not specifically given elsewhere.

Components of a formal report

Front cover
Title page
Letter of transmittal
Abstract
Key words
Contents
List of figures
List of tables
List of symbols
Preface
Acknowledgements
Summary or executive summary
Introduction
Analysis
Conclusions
Recommendations
References
Bibliography
Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Acknowledgements

Author is required to acknowledge any help given in the production of the report. Include lab assistance, personal communication, editorial help financial support etc. Sometimes there are only a few and they are given in the letter of transmittal or preface.

Summary

The summary is a complete, independent condensation of the report.

Usually written last, often the most important part of the written report.

Executive summary is summary written in non-technical terms for executives not normally the primary readers of the report, but who may be project and financial managers of the institution/company.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Summary

"A technical report is not a novel in which the conclusions is cleverly concealed for 300 pages until the final chapter. The summary section serves to outline the complete report in advance."

[Andrews, et al. text p117]

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Report Body

Introduction

What are the purpose and scope of the report, that is, what questions are being answered.

What are the motives for the work? Why is it being written.

Who or what category of persons is intended to read the report.

How was the work performed –process and methodology.

Sufficient background to understand the body of the report.

Finish with a brief outline of the rest of the report.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Report Body

Internal sections

Typically ordered in logical sequence for the intended purpose of the report. Therefore, ordered in rank of importance, chronology, spatially, cause-and-effect, or problem-method-solution sequence. Other ordering strategies may be according to a classification scheme, comparative analysis, general to specific or other.

Diagrams, Tables, Figures (more later but for now…)

Complex structures and relationships can be explained much more clearly by artwork than by written description. A single diagram can convey the essential message of an entire report. Insert them into the report after first mention of them in the text, and all of them be mentioned in text else they are not to be included.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Report Body

Citations

The mention of a reference within the report text called a citation. Each reference in the list (in the matter) provides the authorship, title, and other document details that supports or supplements the report. The purposes of citations are:

-To give credit for material quoted or used

-To give background material the reader is expected to know

-To place the report in the context of existing documents

-To mention related or similar material not in the report

-To allow conclusions based in part on other's work cited

-To add authority to a conclusion – confirmed by others independently.

Components of a formal report

Front cover
Title page
Letter of transmittal
Abstract
Key words
Contents
List of figures
List of tables
List of symbols
Preface
Acknowledgements
Summary or executive summary
Introduction
Analysis
Conclusions
Recommendations
References
Bibliography
Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

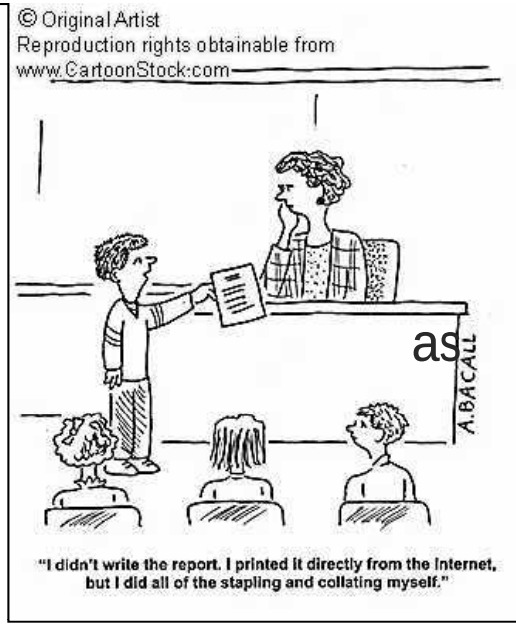
www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Report Body

Avoiding Plagiarism

The act of presenting other's words or work as your own is highly unethical. Guidelines for avoidance are as follows.



-Enclose borrowed work in quotation marks.

-Cite work even when you do not use the exact wording but from whom you have obtained ideas, findings descriptions etc. All must be cited in parenthesis and included in the references.

-Summarize or paraphrase in your own words – do not subtley change the wording and feel this is adequate. Read, think wait a while and write the take-away message as you understand it. Always cite the sources.

-Acknowledge collaborative work – always. Just state it as it is.

- One must get over the sense that one's work is better when it appears completely original without support or tie-in to others. It is not.

Report Body

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Conclusions

Every investigation must reach a conclusion.

The conclusion is a conviction reached on the basis of the evidence and analysis contained in the report body. The evidence may be from the author's work, or, from the references cited in the work. Every conclusion must be supported by the report, cited references or both.

The conclusion section should be inextricably tied to the introduction section so that every question introduced is answered, and vice versa, every conclusion must be introduced.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

Recommendations

Answers the question, "What should I do, or should be done in general, about the situation?"

Recommendations require decisions to be made by someone in authority, thus they must be specific and complete.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Back Matter

References

Technical societies have their own guidelines for the correct form of a citation – but in general they must uniquely identify the reference with the authors, date, title and other supporting info.

Usually references are listed either:

-Alphabetically, or,

-In the order in which they were cited

Each reference is labeled with either

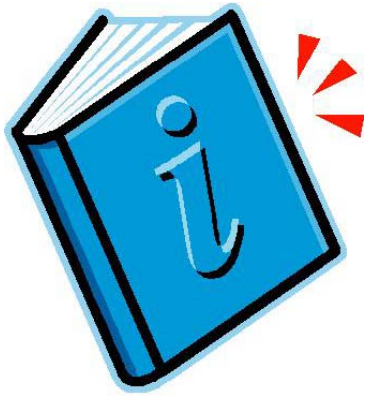
-A numerical list identifier, or

- a combination of author and year of publication.

Styles are shown as follows:

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices



MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR
Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

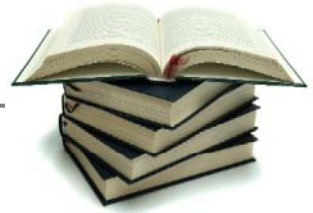
FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report: **Back Matter**



Bibliography

Non-cited documents that are of benefit to the reader for background information or further reading.

They are structured and written the same way as references.

Appendices

Contain material supplemental to the report body.

It should not be necessary to read the appendices to understand the report or the conclusions.

Large or numerous figures, tables etc that interfere with the clarity of the report may be placed in the appendix and referred to in the body.

All appendices must be referred to in the body of the report and the title of each appendix section must include a brief description of the contents. Do not simply use "Appendix A" as the title.

Components of a formal report

- Front cover
- Title page
- Letter of transmittal
- Abstract
- Key words
- Contents
- List of figures
- List of tables
- List of symbols
- Preface
- Acknowledgements
- Summary or executive summary
- Introduction
- Analysis
- Conclusions
- Recommendations
- References
- Bibliography
- Appendices

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_4.ppt
DESPRO_4.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Components of a formal report:

Writing a report

STEPS

Plan, execute and revise

1. Identify the reader and the purpose
2. Plan and outline the report
3. Organize the information
4. Complete the supporting sections
5. Revise the material until it meets the stated purpose
6. Submit the report.

See the checklist in the text referenced – worth copying and using

NEXT – Report Graphics

Report Graphics

The quality of report graphics reflects the quality of the work carried out, the writing and the communicative skills of the author.

Graphics should not be the mere byproducts of your analysis – they should be deliberate and focused for the best communication to the reader.

Graphics are to be created to express complex subjects clearly.

Graphics compliment writing and writing compliments graphics – balance is essential.

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR
Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Three Principles of Graphic design

1. Clarity – display the correct message
2. Efficiency – summarizes a significant amount of data
3. Balance – graphics and text compliment each other – graphics reinforce the text – are not intended to replace it entirely

Report Graphics

You must know the message clearly before attempting a graphic – especially true of complex, multi-variable relationships. None-the-less a successful graphic will replace a difficult written explanation and improve reader understanding.

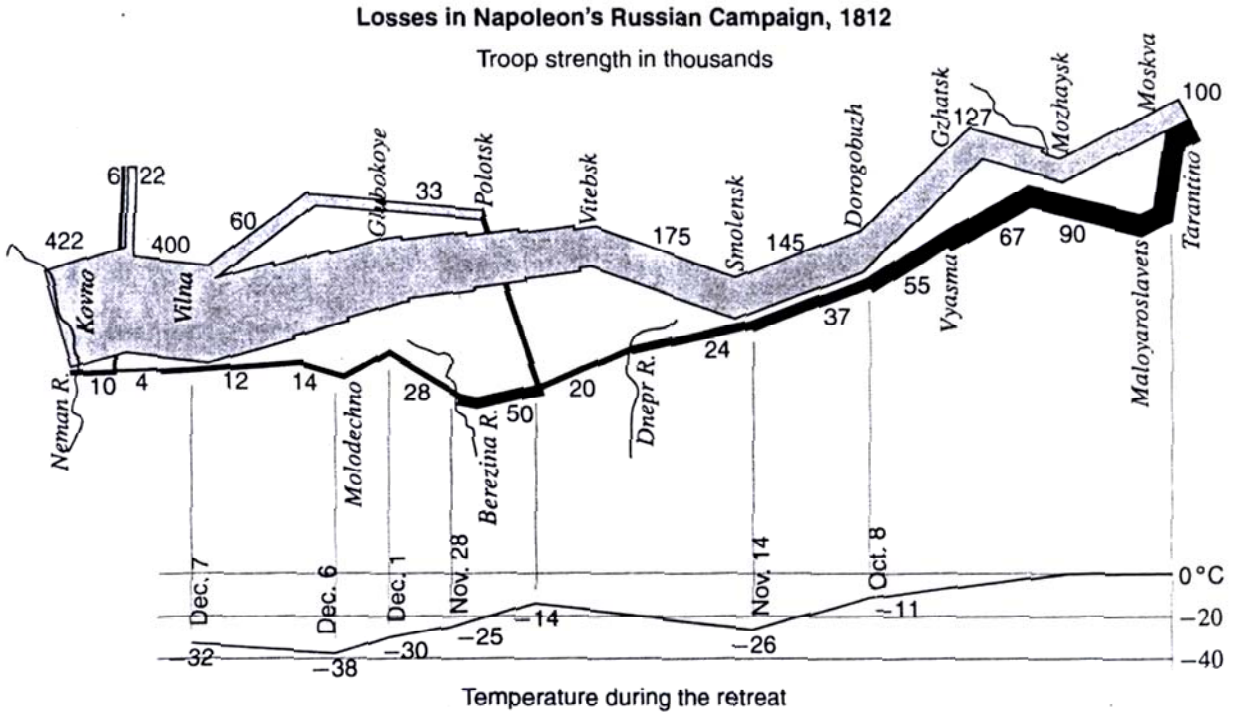


Figure 9.1 A graphic can explain a complex subject clearly. French engineer Charles Minard drew the first version of this chart in 1861, showing French army losses caused by the march, the main battles, disastrous river crossings, and wintry temperatures. The gray band shows the size and path of the advancing army, the black band traces the retreat, and temperatures are shown below. The army strength *decreased from 422 000 troops to 10 000.*

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

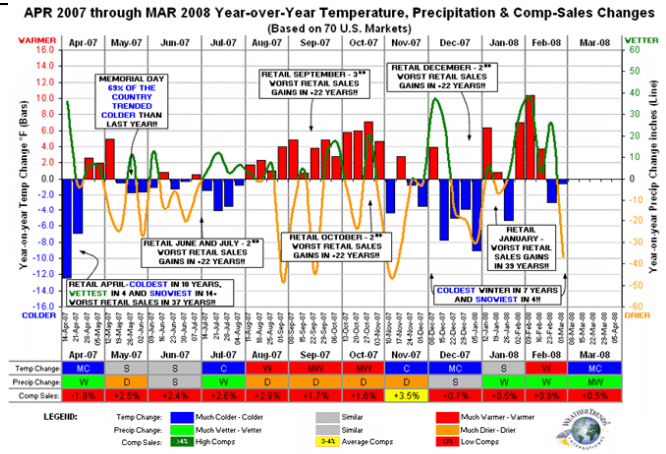
FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics



Simpler = better

Complicated = confused

Lengthy and detailed computer output may give the false impression of sophistication and higher level understanding – if it doesn't help the reader understand the clear message it is simply interfering.

Don't embellish graphics with extra garnishing that are freely offered up by a computer program – unless they are helpful.

NOTE:

> Each figure in an engineering document must have a number and a caption. Tables normally have their own number sequence, separate from figures although tables also require careful graphic design. Captions are placed below figures but above tables. The caption should make a point; it is not simply a title. The reader should be able to understand the principal message of the figure or table from its appearance and caption without reading the report text.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

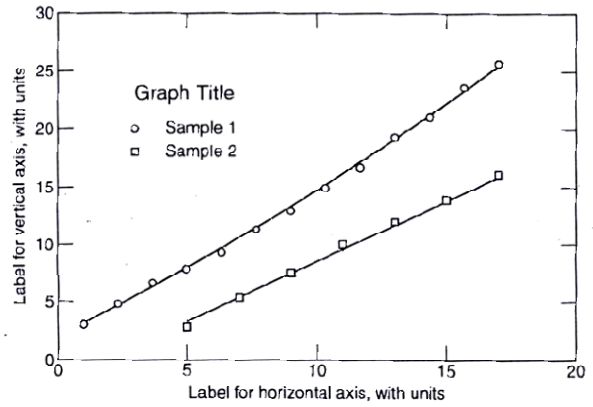
DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Graphs

Basic rules of all graphs, figures etc



1. Fit all graphs within the text page margins
2. Plot the independent variable on the horizontal axis and the observed variable o the vertical axis
3. Knowing the key message – ensure the scale of the axes and the shape of the plot are optimized – include points if they are important, likewise tic marks, grids or other features only if they improve the clarity and understanding of the main message
4. Always label the axes and use the correct unit symbols and or abbreviation.
5. Make the labels readable when the page is viewed in the correct orientation. If the text will not fit then make it readable when the page is rotated 90 degrees clockwise.
6. Mark data points with distinguishable symbols and overlay the curve with these.
7. Make the axes origin point equal to 0 when the absolute value of a quantity is significant.
8. Only draw lines or curves through points that represent a continuous function. If the quantity is only discrete then do not draw a curve or line to fit.

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

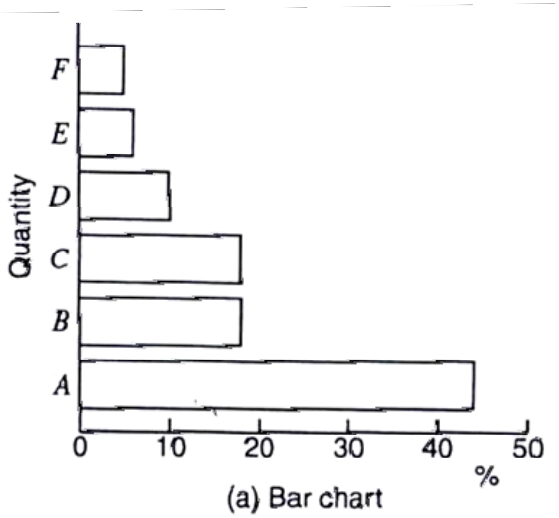
WEB

www.engr.mun.ca/~sbruneau/project/

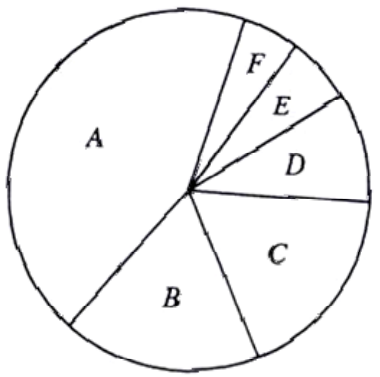
Report Graphics

Charts

- Used to compare quantities
- Bar charts are best when the quantities are to be scrutinized and careful comparisons are to be made
- Pie charts are only useful when relative proportions (%) of a whole are to be displayed for generalized comparison.
- Many other charts are employed in reports – investigate these in the text as listed in chapter 9



(a) Bar chart



(b) Pie chart

A bar chart (a) and pie chart (b) comparing six quantities. The proportions of B compared with C and of E compared with F are difficult to distinguish on the pie chart. Bar charts are preferred.

Report Graphics

Sketches

Freehand sketches are an essential aid for developing and explaining new ideas. A sketch such as Figure 9.9, for example, can effectively communicate ideas that would require long written explanation. Because of the speed and ease with which they can illustrate ideas and relationships, sketching techniques have not been superseded by computer software. New or evolving ideas are often sketched first, then later re-drawn as detailed engineering drawings. However, well-prepared sketches may be used in all but the most formal of reports.

In industrial design offices, the first sketch of a new idea is dated and filed; it becomes a formal record of intellectual property and may be very valuable for patent or copyright purposes. Sketching can also quickly record project decisions and details that might be lost prior to the production of complete project documents.

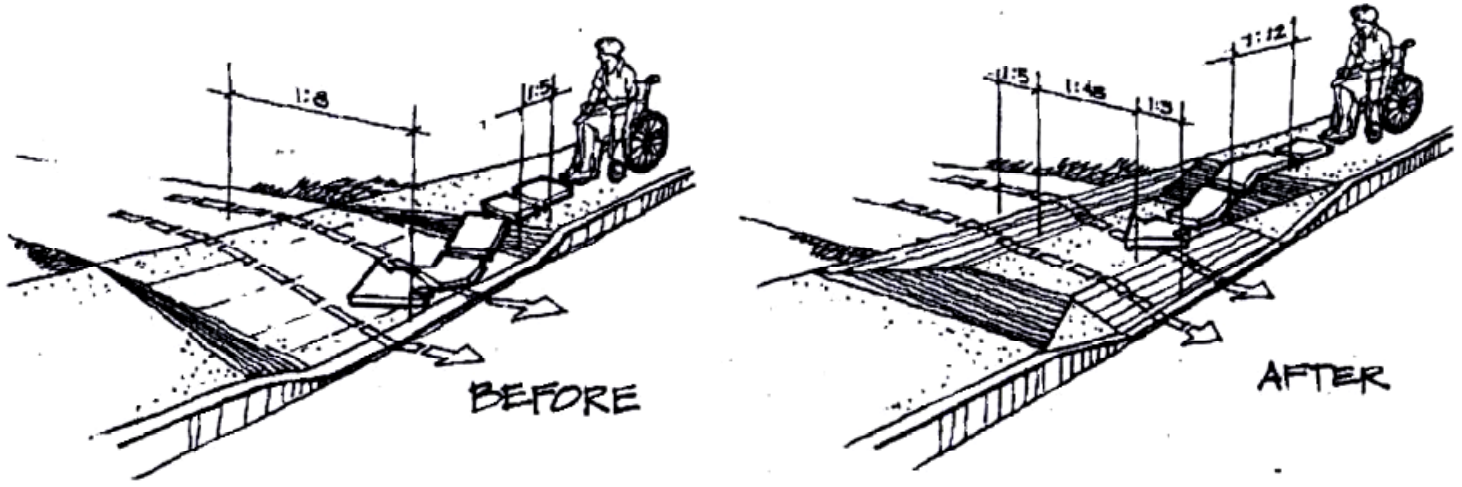


Figure 9.9 A sketch conveys essential details informally and complements or replaces long written explanation. (from [7])

Report Graphics

Sketches – standard gothic lettering for freehand

- Always draw guide lines

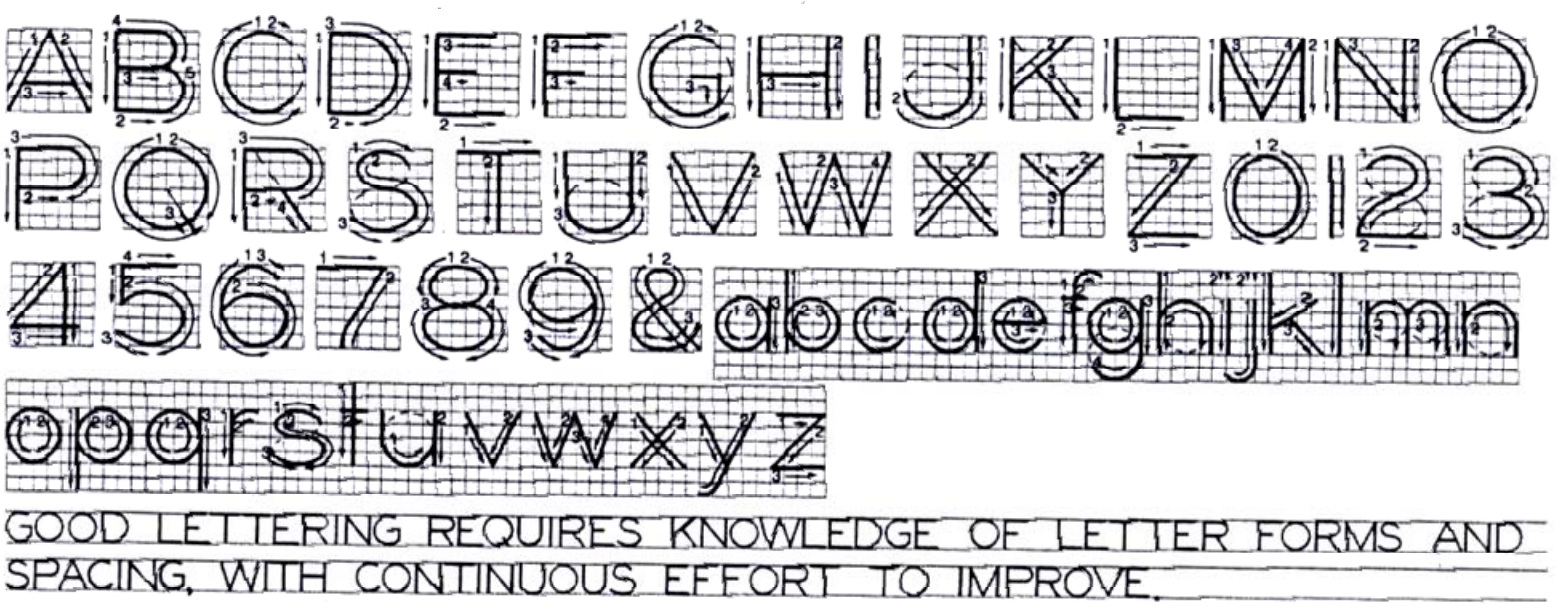


Figure 9.10 Standard letters for sketches and draft diagrams are illustrated, with arrows showing the order of the drawing strokes. All uppercase letters are six units high, and all are six units wide except for those in the name TOM Q. VAXY, which are five units wide, and the letters I and W. Always draw guidelines as shown in the bottom example. Letters should be closely spaced with their placement adjusted to minimize differences between the visually perceived interletter spaces. Interword spaces are approximately the size of the letter O (stroke data from [8]).

MEMORIAL UNIVERSITY

FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

Sketches

Figure 9.11 illustrates some of the many views that may be chosen to describe a simple object. Computer-aided technical drawing is taught in many engineering courses, and requires artistry combined with knowledge of views, projections, sections, perspective, and the graphical symbols and fabrication processes of specific industries. For general advice, consult a textbook [9] or the Canadian Standards Association (CSA) published standard on general drawing principles [10].

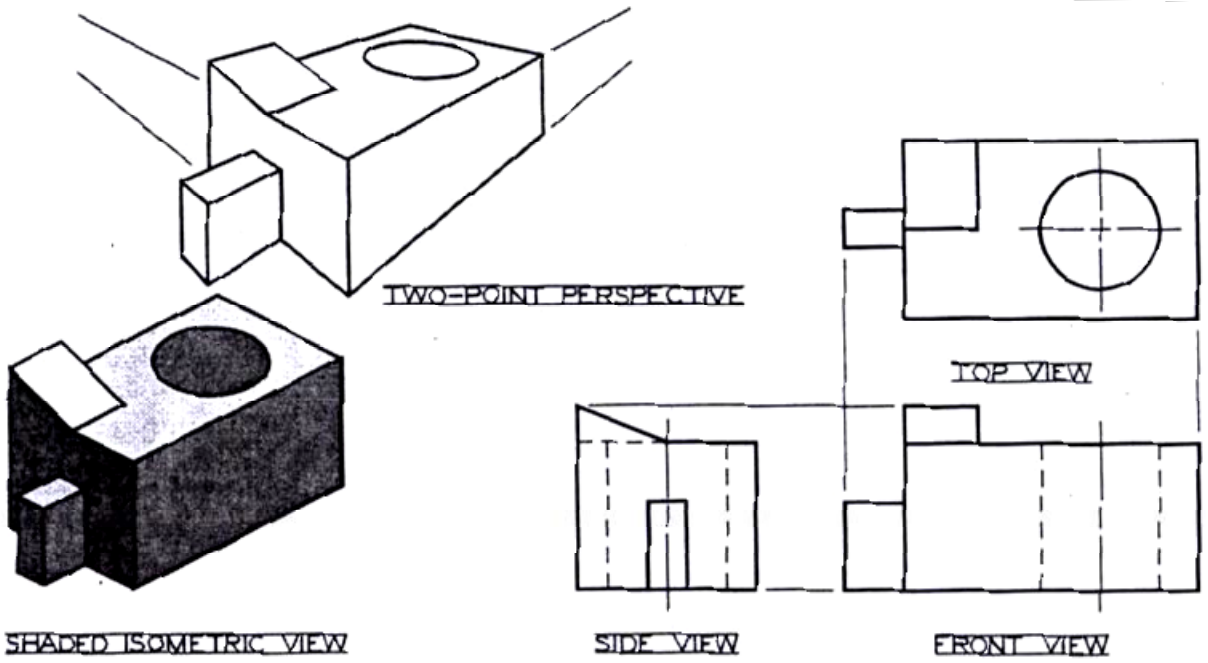


Figure 9.11 Typical views used in sketches and other drawings are shown. The two pictorial views display more than one face of the object. An isometric view shows the height, width, and depth distances to the same scale. In two-point perspective, the parallel horizontal lines of the principal faces of the object converge. The top, side, and front orthographic projections show any line in a plane parallel to the paper (viewplane) to true length.

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

Sketches

Standard line weights and patterns are employed for both sketches and mechanical drawings; Figure 9.12 illustrates the basic types and their typical uses.

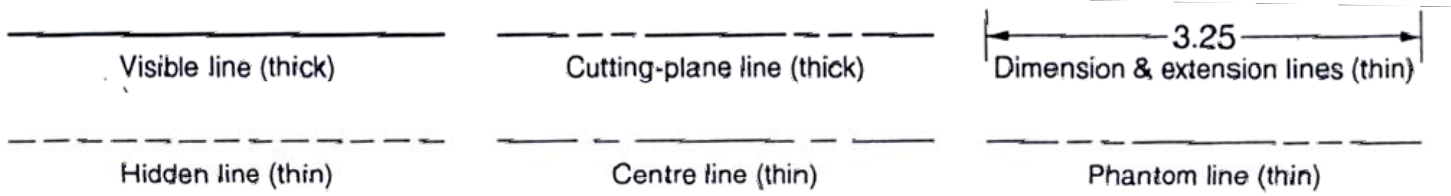
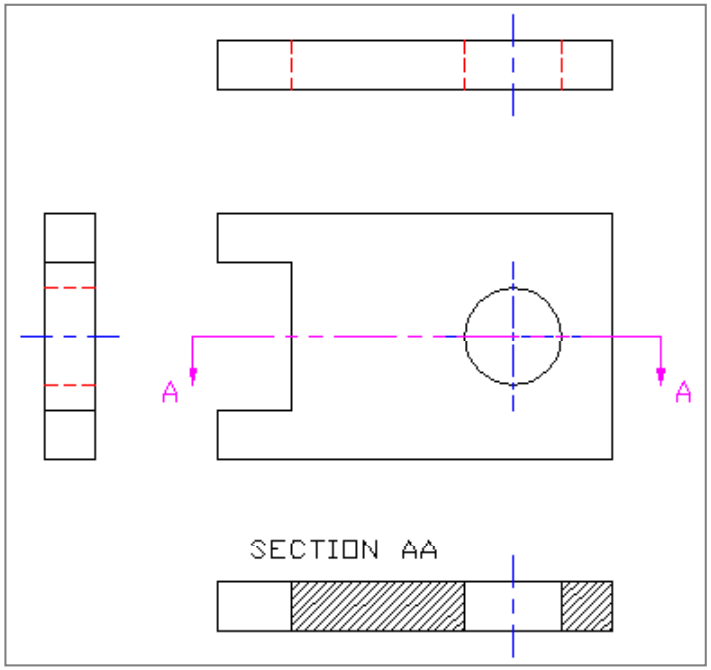
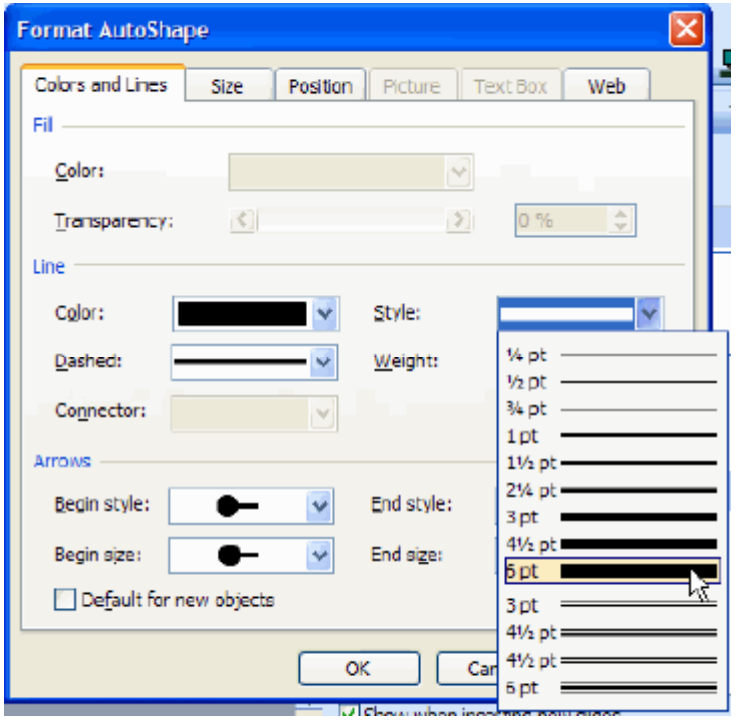


Figure 9.12 The lines used in sketches and other drawings.





COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

Engineering Calculations

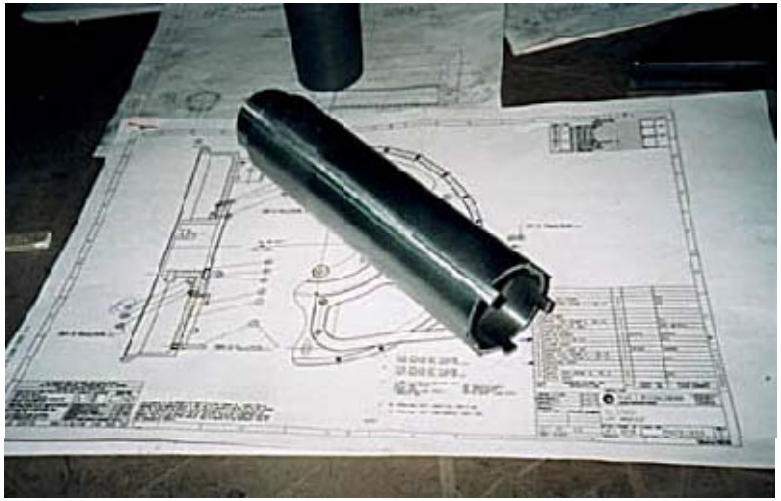
- Are key components of engineering practice and are sometimes crucial factors in major decisions.
- Thus they must be done with care and recorded in reports or other documents with clarity. Unambiguous and clear assumptions must be stated.
- Calculations must often be checked by others as in these circumstances:

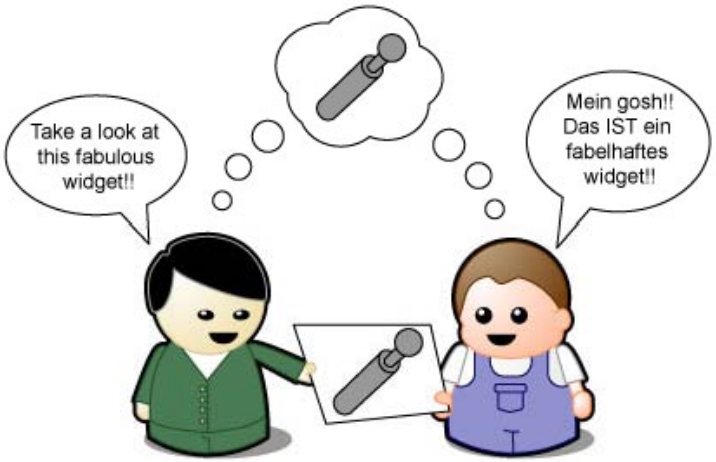
1. When important decisions involving large expenditures amounts of money – they are double-checked byu another engineer
2. When they need to be revisited for a future project in which input may vary
3. In legal cases, civil suits and hearings when required as evidence.

Report Graphics

Establish your standard – I have one for my notes

A standard format for calculations helps to ensure clarity and correctness and to guide the engineer's thought process. The format must be clear and logical, whether the calculations concern the depth of I-beams in a bridge structure, the diameter of pipes in a heat exchanger, the pitch diameter of a transmission gear, or the parameters in an electronic design. Some people have a natural talent for writing technical calculations neatly and logically; others must practise to achieve an acceptable standard.





MEMORIAL UNIVERSITY
FACULTY OF ENGINEERING & APPLIED SCIENCE

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

Engineering Calculations

- Standardized format improves clarity and consistency

Name and Section | Date | Course and Assignment | Page No.

J. JONES K-26 | 15 DEC.'09 | GE 165-ASS'T No. 7 | 4/9

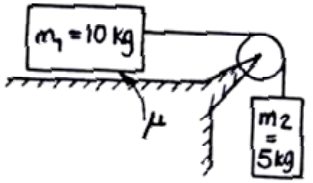
PROBLEM No. 1:

Coefficient of friction $\mu = 0.40$

Weights: $W = mg$

$W_1 = (10\ kg)(9.80\ m/s^2) = 98\ N$

$W_2 = (5\ kg)(9.80\ m/s^2) = 49\ N$



DATA

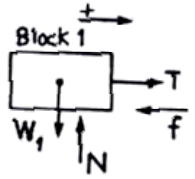
Find the acceleration of blocks 1 and 2

REQ'D

Use standard method of Newton's 2nd Law (Huang, p. 749)

SOL'N

1. Draw Freebody diagrams of blocks:
   (Note: tension is constant along cable.)



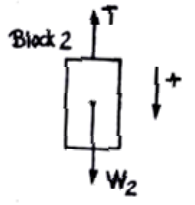
2. Apply Newton's 2nd Law to blocks: $F = ma$

   (Block 1) $T - f = m_1 a_1$ horizontally Eq. (1)

   $N - W_1 = 0$ vertically Eq. (2)

   (Block 2) $W_2 - T = m_2 a_2$ Eq. (3)

3. Write frictional equation(s):



   $f = \mu N$ Eq. (4)

4. Write Kinematic (or constraint) equation(s)
   Due to constraint of cable

   $a_1 = a_2$ Eq. (5)

5. Check number of eq'ns: We have 5 eq'ns in 5 unknowns T, f, N, a_1, a_2, so system can be solved for unknowns.

6. Substitute: Add eq'n (1) and (3) and substitute eq'n (5):

   $W_2 - f = m_1 a_1 + m_2 a_2 = (m_1 + m_2) a_1$

   Substitute eq'n (4) and eq'n (2) into the above:

   $W_2 - \mu W_1 = (m_1 + m_2) a_1$

   Solve for a_1: $a_1 = \dfrac{W_2 - \mu W_1}{(m_1 + m_2)} = \dfrac{49 - (0.40)98}{(10+5)} = 0.653$

   Therefore: $a_1 = a_2 = \underline{0.653\ m/s^2}$ ← ANS. $a_1\ a_2$

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

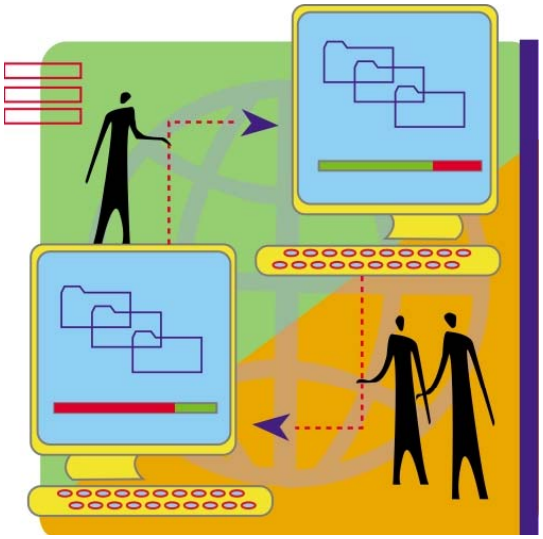
FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics



Engineering Calculations

Standard requirements:

1. A space is reserved across the top for identification, including:
   - author's name,
   - date prepared,
   - project name (or course number),
   - page number and number of pages in the document.
2. The left margin is sufficiently wide for binding.
3. The right margin should be wide enough to be able to flag important items.
4. A statement of the problem is required, including the given data.
5. The calculations are presented clearly. Answers must include units and should be highlighted.

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

MEMORIAL UNIVERSITY

COURSE

ENGI -8700
DESIGN PROJECT

INSTRUCTOR

Dr. Steve Bruneau
EN.4013
Ph 737-2119
Sbruneau @ mun.ca

TOPIC

Engineering Communications

TEXT REF.

Text "Intro to Prof. Engin. In Canada 3rd ed." Ch 6-9

FILES

DESPRO_5.ppt
DESPRO_5.pdf

WEB

www.engr.mun.ca/~sbruneau/project/

Report Graphics

Records of Engineering Calculations

Engineers use a great variety of software for tasks such as modelling, analysis, and prediction. However, as mentioned in Section 3.5, the professional engineer is legally responsible for the calculations and conclusions and cannot blame the computer if the output is incorrect or is misunderstood. A careful record of the data, computation, and results must be kept, containing at least the following information:

- the name of the producer of the file,
- the date and time,
- the name and version of the software producing the result, and
- sufficient information to uniquely identify the input data.