# Engineering Work Term Report Guide

A Guide to Content, Style and Format Requirements

for

University of Victoria Engineering Students

Writing

Co-op Work Term Reports

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# 1. About Your Work Term Report

The main objective of the work term report is to successfully communicate technical ideas about your work experience in a professionally written format. Your report will outline how technical information was applied to solve an engineering problem that you were directly involved with or interested in. A technical report, based on your work term, will be submitted as part of your work term. Check with your supervisor about the content of your report. If it is proprietary, refer to section 2.1 on Proprietary Reports.

### 1.1 Your Audience

Your audience is your marker and your peers. Your marker will normally be an engineering faculty member, an engineering teaching assistant, or a coordinator. Employers may only grade reports in special circumstances.

Write your report at a technical level that is understandable to this audience, i.e. a reader who has an engineering background but who may not be familiar with your particular area of work or the terminology and acronyms commonly used in that context. Make sure that you define all acronyms and terms that are not commonly used. A glossary placed at the beginning of your report can assist the more general reader without hampering the readability of your report.

## 1.2 Report Length

Your entire report should normally be about 3,000 words in length, or approximately 12 to 15 pages of double-spaced text in 12 point font, on standard letter size paper with margins not less than one inch. Pages are printed single sided. Pages are to be numbered as described in Section 4 of this document. Refer to the sample work term report.

# 1.3 Report Style

Write your report in a formal style, avoiding colloquial or slang expressions, and avoiding first person references (I, we, me, us). Sentences such as "I machined five of these cylinders on the lathe" should be expressed as "Five of these cylinders were machined on the lathe". Use passive verb constructions to avoid first person, but use active constructions in most other cases, such as "The cylinders passed the pressure test".

Writing style, spelling, punctuation and the report format will constitute a significant portion of your marks. See the Work Term Report Evaluation Form on CourseSpaces for marking breakdown. For information about writing styles consult the references at the end of this document.

Report formatting varies from one workplace to another. For your Co-op Work Term Reports, use the guidelines provided in this document, even if they differ from those used in your company you worked for during your work term.

# 2. Choosing a Topic

The technical report is an engineering report. It is more than just a technical description. It outlines how technical information was applied to solve an engineering problem. The problem may be one that you worked on directly or assisted with. It may be a problem that fellow employees are working on and that you are interested in. Choosing a topic and developing the report content can be the most difficult part of writing the report.

The easiest way to write a coherent report is to have a topic, then develop a central issue about the topic. It's a good idea to discuss this with your work supervisor. Any material presented in the report should be relevant to the central issue. Ideally, a report should tackle an engineering problem you encountered on the work term: provide suitable background, identify the problem, discuss possible solution(s), if applicable discuss how the solution(s) was implemented and what the result was (e.g. did the solution work as desired), and what changes are recommended, if any.

An example of a topic could be the adoption of a new CAD system. Rather than simply including a lot of unconnected information about the system, an issue could be why the change is needed. Any information introduced in the report should relate to why the change is needed. The introduction would include enough information to allow the reader to understand existing problems (e.g., how the original drawing system works, difficulties when trying to update/access drawings). The requirements for the new system could then be introduced (e.g., cost savings, speed, ease of use), then a discussion on which system was chosen and why it was chosen would follow. Your conclusions could be that the best system was chosen (based on cost, ease of use, speed, availability, etc.) and you could recommend ways to overcome some of the compromises made (e.g., purchasing a laser plotter at a later date to reduce up front costs). By having an issue, the report will follow a logical flow and assist the reader to understand the issue.

Where possible include numbers and reference material to support your statements. For example, stating that "adding a colour printer is not feasible due to costs", is not as convincing as including a table of price quotes from potential suppliers.

# 2.1 Proprietary reports

When at all possible, choose a topic that you can write about without including any confidential information. If you are working on a confidential project that you would like to make the subject of your report, consider the underlying generalizable engineering problem that you are solving. Two other techniques for avoiding issues with confidentiality are to replace names with generic placeholders and to remove identifiable specifics. Before you start writing your report, check with your work supervisor about the content of your report. If you are unable to come up with a non-confidential topic, contact your work site visitor to discuss alternative report options.

# 3. What to Include in Your Report

Include the following items in your report, in the listed order:

- Pre-matter
  - o Title Page
  - Letter of Transmittal
  - o Table of Contents and List of Figures and Tables
  - Summary
  - o Glossary (if required)
- Body of Report
  - o Introduction/Background
  - Discussion (bulk of the report)
  - Conclusions
  - o Recommendations
  - References
- Back Matter
  - o Appendices (if required)

The purposes of each of these sections is described in the following sections.

#### 3.1 Pre-Matter

The pre-matter of your report consists of everything that comes before the Introduction.

### 3.1.1 Title Page

The title page announces your report to the reader. As an announcement, it should be descriptive of the report content and understandable to the general reader. Terminology specific to your company and uncommon acronyms should be avoided in the title. Your title page should not be numbered. It must include the following information:

- A report title no longer than 120 characters (a longer title will be truncated on your student transcripts)
- The company name and location
- Your name, student number, e-mail address, and engineering discipline
- The date you submitted the report.
- A signature from your employer, confirming the release of the report to the university for marking purposes.

Reports submitted without a signature will not be accepted!

Refer to the sample title page (Fig. 1) for overall layout.

University of Victoria Faculty of Engineering Work Term Report Term (Spring/Summer/Fall) Year

# Title of Report

Company Name Division Name City, Province, Country

Student Name
Student Number
Work Term Number
Student Academic Discipline
Student Email Address
Date

In partial fulfillment of the requirements of the B.Eng. Degree

Supervisor's Approval: To be comp	pleted by the Co-op Employer								
This report will be handled by UVic Co-op staff and will be read by one assigned report marker who may be a co- op staff member within the Engineering Computer Science/Math Co-operative Education Program, or a UVic faculty member or teaching assistant. The report will be either returned to the student or, subject to the student's right to appeal a grade, held for one year after which it will be destroyed.									
I approve the release of this report to the University of Victoria for evaluation purposes only.									
Signature:	Position:	Date:							
Name (print):	Email:								
Company Name:									

Figure 1. Sample Title Page

### 3.1.2 Letter Of Transmittal

The letter of transmittal not only introduces the report, but also explains its purpose, scope and outlines the major recommendations. Your contribution to the overall project and acknowledgements of others should also be included. Figure 2 shows a general template for formatting your letter of transmittal. Figure 3 shows a sample letter.

The letter of transmittal follows the title page. It is a letter included with the report and as such, has no page number. Use a standard formal business letter format, address the letter to one of the Engineering Co-op Coordinators and include your signature at the end.

The letter of transmittal should contain the following information on one page:

- The title of the report
- Your work term number (first, second, third, etc.)
- Your year and discipline, eg. 3A Mechanical, 2B Electrical
- The name and location of your employer
- The main activity of your employer
- Your project or area of work
- The scope of the report, i.e. what facets of the problem are discussed
- Disclaimers, special problems encountered, or extenuating circumstances, if applicable
- A statement that the report is confidential, if it is
- Acknowledgements of helpful people, groups or organizations
- Any other features that may be of interest to the reader.

Your Return Address Block

Date

Receiver's name, title/position Address Block Left align this block, and the rest of the letter.

#### Salutation:

Indicate the purpose of the letter (eg. to introduce the enclosed report; what is being sent and why?) (1.2 sentences). Leave a space between paragraphs.

Write a brief summary of the enclosed report (3-6 sentences covering the scope of your work, particular problems addressed, etc.). Add any important considerations. Use 11-12 point body font, left-aligned, single spaced, block paragraphs for the body of your letter; this is the most formal style of letter format.

Reflect on your learning experience.

Acknowledge helpful people.

Closing,

# Signature(s)

Typed names below signatures Name of company

Attachment: title of attached document

Figure 2. Letter of Transmittal Template

Stu Dent 19-1742 Newton St. Victoria, British Columbia V8R 2R2

September 4, 2001

Mr. Lawrence Pitt, Coop Coordinator Faculty of Engineering University of Victoria P.O. Box 1700 Victoria, B.C. V8W 2Y2

Dear Mr. Pitt,

Please accept the accompanying Work Term Report entitled "Colour Sonar Imaging Tool for Fish Stock Assessment."

This report is the result of work completed at the Institute of Ocean Sciences, Department of Fisheries and Oceans, Government of Canada. During my second work term as a University of Victoria student, I was engaged to assist in field sonar data collection, and the subsequent computer processing of this data, for the purpose of herring stock assessment. In the course of this work I developed innovative colour sonar imaging software in an effort to process the data more efficiently and accurately. It is this new method of processing sonar data which is the subject of this report.

Through the course of the term, I was given the opportunity to learn much about electronics repair, digital signal processing, computerized data acquisition, and sonar. I feel that this knowledge will be helpful in future work terms, and in my career.

I would like to thank my manager, Sup Ervisor, for his patience and good judgment, as well as the technologists who were always willing to help.

Sincerely,

Stu Dent

Stu Dent

Figure 3. Sample Letter of Transmittal

### 3.1.3 Table Of Contents And List Of Figures

The table of contents allows the reader to find the location of a specific section or illustration. It is constructed from the major headings used in the report. Note that the appendices are listed at the bottom of the Table of Contents and that a List of Tables and Figures follows on the subsequent page. **Do not list the heading of "Table of Contents" as an item in the table itself.** This error is often created by word processing software that creates the table of contents from the header contents of each section. See Figure 4 for a sample; also see the Table of Contents for this document.

T	BLE	OF	cc	IN	TE	NT	S												
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LIST OF FIGURES															*:				ii
SUMMARY																			111
GLOSSARY OF TERMS AND SYMBOLS.																			iv
																			1
1.0 INTRODUCTION																			î
2.0 POWER SYSTEM CONFIGURATION								٠	٠	٠	٠	٠	٠	٠	٠		٠		3
3.0 COUPLING MECHANISMS												٠	٠			٠	٠		4
3.1 CONDUCTIVE COUPLING																	*	*	4
3.2 ELECTRIC COUPLING		٠.								•	*					•			4
3.3 MAGNETIC COUPLING	•	٠.	•	•		•		٠	٠	•			•	•	•	٠	*	*	
4.0 EFFECTS OF POWER SYSTEM COUP	LIN	GC	URI	RE	NT	s.													6
4.1 NORMAL CURRENTS																			6
4.2 HARMONIC CURRENTS .																			8
4.2 FAULT CURRENTS																			8
4.3.1 Fault Currents and V																		-	9
4.3.2 Fault Currents and C	SPR.						٠.			,									10
5.0 PREDICTION OF FAULTED POWER	SYS	TE	MII	NF	LU	EN	CI	Ε.					٠						12
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6.0 CONCLUSIONS			•						٠	•	٠			•				•	23
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APPENDIX A NEUTRALIZING TRANS	FOR	ME	RO	PE	R/	\TI	O	N											
APPENDIX B SYMMETRICAL COMPO	NEN	TS																	
APPENDIX C SELF AND MUTUAL IMP	'EDA	INC	EC	Al	LCI	UL	ΑT	IC	N	S									
APPENDIX D CALCULATION OF ZER	O SE	QU	EN	CE															

**Figure 4. Sample Table of Contents** 

Below your table of contents, include a list of figures and tables used in your report. See the list of Figures and Tables in this document for an example.

#### **3.1.4 Summary**

The summary is written for the general reader who wishes to be familiar with the content of the report while avoiding details. The summary is a separate report, stating the engineering problem, the approach to the solution, the main conclusions and recommendations. It is written after the main report has been completed. Items in the main report such as tables, figures or sections, are not referred to in the summary. The summary is normally presented centered on its own page, and is less than one page in length, see Figure 5.

#### **Summary**

In the continuing effort to provide continuous VHF radio service along the entire west coast, the Canadian Coast Guard is presently seeking and testing new locations for high-level peripheral radio sites. One such location is the Transport Canada Air Services peripheral RADAR site near Port Hardy on Vancouver Island. This site was tested for field strength in the areas of Goletas Channel, Pine Island, and Port Hardy Harbour. The test used the existing Ministry of Highways repeater to send a signal to the test boat, which sailed around the areas with a test receiver taking measurements at near 5-minute intervals. Both the received signal intensity and the position of the vessel were recorded and the data analyzed and processed. Results showed to be favourable and within Coast Guard standards for VHF communication. The RADAR site would provide a fenced compound, power and microwave link to Telus landlines. Negotiations should be initiated to gain access to these facilities.

Figure 5. Sample Summary

### 3.1.5 Glossary (if required)

If your report contains acronyms, symbols, or terms that may not be familiar to your audience, it may be a good idea to include a glossary explaining these terms. If included, the glossary precedes the introduction to provide an easy reference for the reader.

The glossary defines specialized technical terminology including acronyms, listing them in alphabetical order, while the list of symbols defines the mathematical symbols used in the report. Any mathematical symbols or constants included in the report should be defined since most mathematical usage is not standardized. Glossaries and lists of symbols are useful when a large number of terms must be introduced in the report (as a guideline, if you are defining more than 5 terms a glossary should be used). Refer to the Sample Glossary (Fig. 6) for the recommended format.

Glossary	
Balanced power system	A three phase system with all the voltages equal in magnitude but offset by 120° between phases.
Bus	Junction of two or more elements such as lines, loads, generators, or transformers.
Carbon block protector	Protection device used on telecommunications cable pairs. If a cable pair conductor comes in contact with an abnormally high voltage, the conductor is short circuited to ground by the protector.
Carson's equation	A traditionally used expression for calculating mutual impedance between two conductors.
Fault	A power system condition when a phase conductor contacts another conductor or ground. The contact may be direct or through an arc.
Four-wire system	A three phase power system with a neutral conductor.
GPR	Ground potential rise. The difference in voltage of a grounding point to remote ground.
Looped system	A power system where lines form a multipath network between supply and loads.
Radial system	A power system where lines radiate out from a supply to a load. Any load has only one supply path.
Residual current	The net sum of the currents in all phase and neutral conductors at some point in a power system.
Three-wire system	A three phase power system with no neutral conductor.

Figure 6. Sample Glossary

### 3.2 Main Body

The main body of your report includes everything from the Introduction to the References.

#### 3.2.1 Introduction

The introduction introduces the report to the reader by:

- making a few background statements about the company/organization
- introducing the subject to be discussed
- mentioning why the subject is important
- outlining the content of the rest of the report
- containing sufficient background information for the reader to understand the rest of the report.
- providing a thorough problem definition which the described solution(s) must address.

**Introductions should never be longer than the discussion**. If a significant amount of background information is required, some of the material may be included as appendices.

The introductory material may be presented in several sections to cover the scope of the report as well as provide the necessary background information. In the sample Table of Contents, the introductory portion is contained in sections 1 through 4.

#### 3.2.2 Discussion

The discussion is the foundation of a report. It presents evidence in the form of referenced facts, data, test results, and analysis upon which the conclusions are based. A well-written discussion flows logically from concept to concept to lead the reader to the appropriate conclusions.

The discussion may contain several sections if several concepts are presented. In the sample Table of Contents, the discussion is contained in subsections 5.1 through 5.5.

### 3.2.3 Conclusions

Conclusions are the results derived from the evidence provided in the discussion. **No new material is presented in the conclusion**.

When presenting more than one conclusion, state the main conclusion first followed by the others in the order of decreasing importance, to ensure the maximum impact on the reader.

#### 3.2.4 Recommendations

Recommendations are an outline of what further work needs to be done based solidly on the information you previously presented in the report. They have the greatest impact when written using action verbs. **Again, do not introduce new material or concepts here**.

#### 3.2.5 References

Any information quoted, paraphrased, or summarized must be cited and documented as a reference using IEEE Style [1]. Citing references assists the reader by indicating where further information can be found and lends credibility to the analysis within your report. Please note: Wikipedia may be neither an accurate nor authoritative reference source, and should **not be cited**. "Definition by popular consensus" does not constitute a suitable reference. Instead, use original published source material from reputable established sources.

Any material introduced in the report that is not your original work should be followed by a number in square brackets (your in-text citation], which cross-references to an item fully

documented in the list of **References**. The material cited may be tables or figures from other sources, equations which you did not derive, technical specifications or facts used to support your claims.

#### **In-text Citations**

When citing a reference within the report, the corresponding reference number may be included in square brackets in the following places:

- at the end of a sentence just before the period, eg. [2].
- Directly after the reference to the author or source [3], if necessary to avoid confusion over attribution of source material
- after figure and title labels, eg. Figure 1: Network Design [3].
- after the appendix title if the entire appendix is copied from another source, eg. Appendix A [4].
- at the right hand margin beside a mathematical equation.

#### Making Your Reference List

Note that each listed reference includes the following information:

- the name(s) of the author(s)
- the title of the document
  - o For book and journal titles, the title is italicized
  - o For articles in journals, the title of the article is included in quotation marks
- other information
  - For books, the publisher's name and location, and the year the book was printed
  - o For articles, the name of the journal, the volume number and the date of issue
  - o For reports, the report number, the name and location of the issuer and the date of issue
  - o the page number, when applicable

For other types of documents or internet sites, see the IEEE Citation Reference guide.

In the list of references, list the cited references in the same order as they are referred to in your report (eg. The first source you refer to in your report will be [1] and will always be referred to as [1] within your report). The reference numbers appear in square brackets at the left-hand margin. General References are listed separately in alphabetical order. See Figure 7 for formatting example.

#### **Cited References**

- [1] J.A. Smith, An Introduction to Engineering, New York: Doubleday, 1981.
- [2] A. B. Brown, P. D. Adams and J. A. Smith, "Improved procedure for error detection," *Can. J. of Elec. Engineers*, Vol. 9, pp. 545-588, Nov. 1979.
- [3] J. A. Smith,"A preliminary analysis of internal waves in the Strait of Georgia," UVic Electrical Engineering Report 84-3, 5 pp., 1984.
- [4] H. Rosenblum, private communication, 1988.
- [5] Phoenix Group, "Flight Simulator Study Results," *Phys. Rev. Lett.*, Vol. 26, p. 1231, 1985.
- [6] B. A. Trubnikov and V. S. Kudryartsev, "Plasma radiation in a magnetic field," in *Proc. 2ns U. N. Cong. Peaceful uses of Atomic Energy* (Geneva), Vol. 31, p. 93, 1958
- [7] IBM ASTAP Program Reference Manual, IBM Corp., 1973.
- [8] A. Harnack and G. Kleppinger, "Beyond the MLA Handbook: Documenting Electronic Sources on the Internet." *Kairos*, [Online serial] 1 (2), (1996 Sum), Available at: http://english.ttu.edu.kairos/1.2/

#### **General References**

Brown, A. B., P. D. Adams and J.A. Smith, "Improved procedure for error detection," *Can. J. of Elec. Engineers*, Vol. 9, pp. 545-588, Nov. 1979.

Smith, J. A., An Introduction to Engineering. New York: Doubleday, 1981.

Figure 7. Sample Reference Page

### 3.3 Back Matter

Back Matter includes anything attached to the end of our report following the references. These are usually called appendices.

### 3.3.1 Appendices (if required)

Any data supplementary to the main ideas of the report may be placed in an appendix. The information may be a description of the processes involved, analytical proceedings, computer printouts, technical specifications, data, code, or excerpts from other reports. Any type of information may be placed in an appendix if it is relevant, provided it is referred to in the main report.

An appendix refers to one set of information. If several sets of information are to be included, several appendices may be used. Appendices should be referred to by letter (Appendix A, Appendix B, etc.).

Page numbers in appendices are hyphenated, eg. A-1, B-12, etc. In the Table of Contents appendices are listed at the bottom with no page reference to avoid redundancy, since the first page of appendix A would be A-1, and the first page of appendix B would be B-1, etc.

### 4. Overall Format

Your document must be written in a formal report format that optimizes readability. Use document design features such as headings, lists, figures, tables, appropriate margins, fonts and white space to create a logically organized, visually appealing document.

# 4.1 Page Numbering

Except for the title page and letter of transmittal, all pages are numbered. Sections of the document, however, have different numbering systems:

- *Pre-matter:* Sections preceding the introduction (called pre-matter, and including Table of Contents, List of Tables and Figures, Summary, and the Glossary) are numbered using lower case roman numerals, i.e., i, ii, iii, iv, etc.
- The Main Body: The body of the report, starting with the Introduction should be numbered using Arabic numerals (1, 2, 3, etc), with the Introduction starting on page 1. Page numbers may be placed at the top middle, top right hand corner, bottom middle or bottom right hand corner of the page. The location of the page numbers should be the same throughout the report to avoid confusion.
- *Back Matter:* Appendices are numbered separately from the rest of the report usually by appendix designation followed by the page number. eg. A-1, A-2, B-1, etc. See **Error! Reference source not found.**

### 4.3 Headings

Every section in the report has a heading. A heading should briefly and concretely describe the section that follows and should be followed by a paragraph rather than another heading (avoid stacked headings). Section and sub-section headings are used in the Table of Contents to assist the reader in locating specific material in the report; therefore, the more specifically and concretely the headings are worded, the more helpful they are to the reader.

First level headings must be left justified; sub-headings can be either left-justified or indented for each layer. Using **Styles** in the MS Word program allows you to auto-generate a Table of Contents from the headings, and list of figures and tables from your captions. Headings and

subheadings should be easily distinguishable (using font size, bold, italics or indentation) to indicate the level and sub-level of each section.

Headings may be numbered using Arabic numerals (do not use an alpha-numeric system). See Sample Table of contents (Fig. 4) or the table of contents of this document for an overview of heading numbering systems. An illustration of possible heading numbering and formatting systems is outlined below. If you have few headings, you may choose to not number them.

You can keep all headings left justified with the margin, and use a variety of font and size options to clearly distinguish one level from another (Fig. 8).

# 1. Level One Heading (biggest, boldest font)

# 2. Level One Heading

2.1 Level Two Heading (slightly smaller font, still bold)

# 2.2 Level Two Heading

- 2.1.1 Level Three Heading (same size as body font, but may be bold and/or italicized)
- 2.1.2 Level Three

Figure 8. Sample Heading, Left Justified Example

In addition, you can use indentation to indicate sub-levels of headings. If you choose this, make sure your text does not end up squished to one side of the page (Fig. 9).

# 1. Level One Heading (biggest, boldest font)

# 2. Level One Heading

- 2.1 Level Two Heading (slightly smaller)
- 2.2 Level Two Heading
  - 2.1.1 Level Three Heading (same size as body font, but maybe bold and/or italicized)
  - 2.1.2 Level Three

Figure 9. Sample Heading, Indented Example

### 4.4 Capitalization

When writing work term reports, covering letters and resumes, follow the accepted rules of capitalization. The 3 most relevant rules are

- [1] Capitalize official names and titles of government agencies, companies, departments, divisions and organizations, such as
  - Air Pollution Control Division
  - Crown Publications
  - Keen Engineering Ltd
  - Province of British Columbia
- [2] Do not capitalize words such as government, federal agency, department, division, administration, group, company, research and development, engineering, and manufacturing when they stand alone. They are only capitalized when they are part of an official name (Tab. 1).

**Table 1. Capitalization Groups Examples** 

Wrong	Correct
This is a problem for Research and Development, not Engineering.	This is a problem for research and development, not engineering.
	This is a problem for the Research and Development Department, not the Engineering Department.
Jane Doe is the head of her Division in the Company.	Jane Doe is the head of her division in the company.
	Jane Doe is the head of the Standards Division in ABC Engineering.

<sup>[3]</sup> Do not capitalize words to emphasize them.

Avoid capitalizing words to make them stand out - use *italics* or **bolding** instead. Random capitalization at best detracts from the appearance of your work, and at worst creates the impression that you don't understand basic writing rules (Tab. 2).

**Table 2. Capitalization Emphasis Examples** 

Wrong	Correct
Advertising and publicity can enhance the Value Package of your product.	Advertising and publicity can enhance the value package of your product.
	Advertising and publicity can enhance the value package of your product.
Burning is a Chemical Reaction in which Oxygen atoms combine with the atoms of the Substance being burned.	Burning is a chemical reaction in which oxygen atoms combine with the atoms of the substance being burned.
	Burning is a <i>chemical reaction</i> in which <b>oxygen</b> atoms combine with the atoms of the substance being burned.

This information was adapted from *The Elements of Technical Writing*, Gary Blake and Robert W. Bly, MacMillan, pages 59-60.

### 4.5 Tables and Figures

Tables and figures illustrate information in an easily understood format. Figures refer to any visual element – graphs, charts, diagrams, photos, etc. – that are not Tables. They may be included in the main sections of the report, or if they contain supplemental material they may be contained in an appendix. Try to ensure that figures and tables are not broken over two pages. Tables that require a full page might be best put in an appendix.

If the table or figure that you present in your report was not created by you, but comes from other sources, you must include a reference for the original source in your caption: eg: Figure 1. Network Design [3]. You must ensure that all figures and tables represent data accurately and ethically, and they that they do not distort data to create bias.

### 4.5.1 Labeling Tables and Figures

Use the following conventions to assist the reader in understanding your graphics:

- Tables and figures are numbered separately. e.g. Table 1, Table 2, Figure 1, Figure 2.
- Label Figures and Tables with numbers and **descriptive captions** that clearly indicate what the figure or table illustrates without having to read anything else on the page.
- Always place table labels **above** the table.
- Figure labels are generally placed **below** the figures (if you choose to place them above the figures, do so consistently throughout your document).

There are two systems for numbering figures and tables within your document:

- 1. *Simple Consecutive Numbering:* All figures and tables are numbered consecutively (figure 1, figure 2, figure 3, Table 1, Table 2, Table, 3 etc.) throughout the document regardless of which section they are in.
- 2. *Section-based Numbering:* Within each section, figures and tables may be numbered sequentially through each section (e.g. Table 1.1 refers to the first table in section 1, Table 2.4 refers to the fourth table in section 2).

If a large number of illustrations are presented, the latter option is the better choice. This can become confusing, however, when using sub-sections.

### 4.5.2 Referring to Tables and Figures in your text

Any figures or tables you use in your document must be discussed in your text. Use the following guidelines when discussing and referring to tables and figures:

- Place the table/figure close to where it is first referred to in the text (preferably just below the paragraph in which it is mentioned).
- Refer to tables and figures in your text by their numbers, not their placement in the text. Eg, "See figure 9 for a detailed schematic" (**not** "see the figure below"); "the test results are summarized in Table 1."
- Wherever possible, try to orient illustrations in the same direction as the main text.

Table 3. Sample Weighted Objectives Table

Objectives	Weight	Measurement	De	sign 2				
		Parameter	Magnitude Score V		Value	Magnitude	Score	Value
Speed	3	Meters/sec						
Accuracy	2	cm from goal						
Reliability	2	# of times/5						
Efficiency	2	Energy use						
Safety	1	Damage done						
Overall Uti	lity							

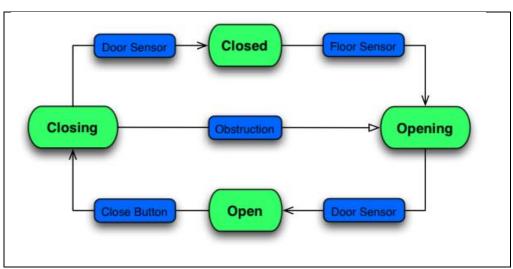


Figure 10. Sample Diagram of a Finite State Machine for Elevator Door [8]

# 5. Work Term Report Submission and Evaluation

Work term reports are due the first day of classes of the next term. Work term reports are normally evaluated by either an engineering faculty member, a teaching assistant, or a co-op coordinator. Employers may grade reports in special circumstances (talk to your coordinator).

The report is graded on a Pass/Fail basis, but marked out of 100%. Refer to the Work Term Report Evaluation Form for marking criteria. Clarity of expression is evaluated throughout all sections; marks will be deducted if ideas are not expressed clearly and coherently.

# 6. Additional Resources

Need additional help? Contact your co-op office or refer to these resources:

- [1] IEEE, *IEEE Citation Reference* [Online].

  Available: <a href="http://www.ieee.org/documents/ieeecitationref.pdf">http://www.ieee.org/documents/ieeecitationref.pdf</a>
- [2] E. Tebeaux and S. Dragga, *Essentials of Technical Communication, 2nd Edition*. New York: Oxford University Press, 2010.
- [3] K. L. Turabian, W. C. Booth, G. G. Colomb and J. M. Williams, *A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students and Researchers*. Chicago: University of Chicago Press, 2013.
- [4] G. J. Searles and K. M. Moran, *Workplace Communications: The Basics, Canadian Edition.* Toronto: Pearson, 2012.
- [5] M. Carey, M. McFadden Lanyi, D. Longo; E. Radzinski, S. Rouiller, and E. Wilde, Developing Quality Technical Communication: A Handbook for Writers and Editors. 3<sup>rd</sup> Ed. IBM Press, 2014.
- [6] University of Victoria, *Centre for Academic Communication (CAC)* [Online]. Available: <a href="http://www.uvic.ca/learningandteaching/home/home/centre/">http://www.uvic.ca/learningandteaching/home/home/centre/</a>
- [7] University of Victoria, *Engineering and Computer Science/Math Co-op* [Online]. Available: <a href="http://www.uvic.ca/coopandcareer/co-op/info-by-program/engineering/index.php">http://www.uvic.ca/coopandcareer/co-op/info-by-program/engineering/index.php</a>
- [8] Rudolph Van Graan. (2014, May 15), *Java FSM On Erlang FSM Model* [Online]. Available: http://www2.erlangcentral.org/wiki/?title=Java FSM on Erlang FSM Model

# **Appendix A - Important Information on Plagiarism**

The University of Victoria calendar contains the following information on academic integrity:

#### **Plagiarism**

A student commits plagiarism when he or she:

- submits the work of another person in whole or in part as original work
- gives inadequate attribution to an author or creator whose work is incorporated into the student's work, including failing to indicate clearly (through accepted practices within the discipline, such as footnotes, internal references and the crediting of all verbatim passages through indentations of longer passages or the use of quotation marks) the inclusion of another individual's work
- paraphrases material from a source without sufficient acknowledgement as described above

#### **Multiple Submission**

Multiple submission is the resubmission of work by a student that has been used in identical or similar form to fulfill any academic requirement at UVic or another institution. Students who do so without prior permission from their instructor are subject to penalty.

#### Falsifying Materials Subject to Academic Evaluation

Falsifying materials subject to academic evaluation includes, but is not limited to:

- fraudulently manipulating laboratory processes, electronic data or research data in order to achieve desired results
- using work prepared in whole or in part by someone else (e.g., commercially prepared essays) and submitting it as one's own
- citing a source from which material was not obtained
- using a quoted reference from a non-original source while implying reference to the original source
- submitting false records, information or data, in writing or orally

### Aiding Others to Cheat

It is a violation to help others or attempt to help others to engage in any of the conduct described above.

Penalties for plagiarism range from a simple reprimand, to a failing grade for the course, to permanent suspension from the program. See the calendar's Policy on Academic Integrity page for more information: http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html

To be certain that you are using the proper way to cite passages from another source, review the IEEE guidelines, Academic Writing course material, and library resources.

**NOTE**: The University reserves the right to use plagiarism detection software for any submitted report. Students should be prepared to provide their reference/bibliographical material upon request.