University of Victoria

Engineering and Computer Science Co-operative Education Program + Career Services

Computer Science Work Term Report Guidelines

Updated: 2021-01-06

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Abstract

This document outlines the requirements and formatting specifications for computer science work term reports. All students on a work term are **required** to submit a report at the end of each job placement, and should follow the instructions and examples included in this template even if it is different from the style used by company you worked during the term. The report should be about a technical project or series of tasks that were undertaken during the work placement and should:

- Focus on a technical problem/project/task
- Be coherent and focused around the central theme of the problem/project/task
- Be written in a formal style – do not use first person references
- Take into account its intended audience – make sure to include a glossary if this is needed to understand the details
- Not be longer than specified – use appendices for any supporting documentations if necessary

Section A: Report Quality - About the Work Term Report

1.0 Report Topic

The objective is to write a report that successfully communicates technical ideas about your co-op work term, which aids in the development of your technical writing and analytical skills. It should not read like *"a summary of what I did during my work term"* rather its goal is to illustrate the use of technical skills and knowledge applied to projects and/or tasks. The contents of the report must be approved by the supervisor to make sure that it doesn't contain any proprietary information**.** Consult with your work supervisor to identify the best theme for your report then use this as the focal point for the document. By having a central issue, the report will follow a logical flow and assist the reader to understand the issue. If necessary consult your work site visit coordinator for clarification.

Ideally your work term report should be written around a substantial technical project or tasks that was done during your co-op job but this may not be possible so you have the option to write about a technical topic but it must be relevant to the company/role during your work term. **For example, if you are employed as a software tester but worked on mostly small tasks that may not be enough to discuss in your report, you could write about how an improved testing environment/framework would be beneficial to the company and their software development process. Or you could compare manual versus automated testing and discuss how either would be more beneficial or appropriate for the company's software testing.** The report should be concise, coherent and only contain information relevant to the project/tasks/technical problem being discussed. 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. Be sure to:

- provide suitable background*;*
- identify the problem*;* discuss possible solution(s)*;*
- if applicable, discuss how the solution(s) was (were) implemented and the result(s). Did the solution work as desired?

1.1 Report Marker

The marker will be a co-op coordinator, a faculty member or a teaching assistant (TA). Write the report at a technical level that is understandable to a reader who has a technical background but who is unfamiliar with the work that was done. **Avoid acronyms and local jargon used at the work place, or**

include a glossary to help the reader understand the subject matter. During grading major revisions may be required in order to receive a passing grade, this will be communicated by the marker to the student, along with information about new submission deadline and necessary revisions.

1.2 Report Length

The 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 to be numbered as described in section 1.51 of this document.

1.3 Report Style

Write in a formal style; avoid using casual or colloquial phrases and first person references (I, we, me, us). For example, "***I wrote scripts in Python to automate some testing***" should be written as "***Testing was automated using scripts written in Python***". Use passive verb constructions to avoid first person, but use active constructions in most other cases. Spelling, grammar, punctuation and the report format are important, before submitting make sure to proofread and edit the document. Some frequently noted errors are:

- using a singular subject and plural pronoun,
- incorrect use of commas
- sentences that are missing a noun or a verb
- incorrect spelling
- incorrect use of it's/its, their/there/they're and we're/were
- inconsistent or incorrect use of capital letters

1.4 Report Formatting

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.

1.4.1 Page Numbering

Except for the title page, all pages are numbered. Sections preceding the introduction (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. 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.

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. or I-1, I-2, II-1, etc.

1.4.2 Section Numbering

Number sections in the report using a numerals-only system. Headings can either left-justified or indented for each layer.

1.4.3 Headings

Every section in the report has a heading. A heading briefly describes the section that follows and are most often followed by a paragraph rather than another heading. Section and sub-section headings are used in the Table of Contents to assist the reader in locating specific material in the report.

1.4.4 Using Capitalization, Italics and Bold

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

1. *Capitalization of government agencies, companies, departments, divisions, and organizations.*
2. Capitalize official names and titles. For example:
   - Air Pollution Control Division
   - Crown Publications
   - Keen Engineering Ltd.
   - Province of British Columbia

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 as shown in Table 2 below.

Table 1 - Examples of capitalizing words.

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.

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. Examples are provided in Tables 3 and 4 below.

Table 2 - Using italics for emphasis.

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.

Table 3 - Using bold font for emphasis

Wrong	Correct
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 *chemical reaction* in which **oxygen** atoms combine with the atoms of the substance being burned.

1.4.5 Using 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. State Machine Diagram [1]. You must ensure that all figures and tables represent data accurately and ethically, and they that they do not distort data to create bias.

As demonstrated throughout this document, any figures or tables used in the report must be discussed in its 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 11 for a detailed schematic” (not “see the figure below”); “the test results are summarized in Table 3.”
- Wherever possible, try to orient illustrations in the same direction as the main text.
- If the table should break over multiple pages then update table properties under the rows tab to repeat as header row at the top of each page

1.5 Additional Resources

If you would like additional help you can consult the following resources:

1. Michael Alley, The Craft of Scientific Writing. Englewood Clifs, NJ, Prentice-Hall, 1987.
2. Gary Blake and Robert W. Bly, MacMillan, The Elements of Technical Writing, The Elements of Technical Writing, MacMillan, U.S.A, 1993
3. K.L. Thrubian, A Manual for Writers of Term Papers, Theses and Dissertations. University of Chicago Press, Chicago, IL, 1996.
4. H.J. Tichy, Effective Writing for Engineers, Managers, and Scientists. Wiley, New York, 1966.
5. Matt Young, The Technical Writer's Handbook. University Science Books, Mill Valley, Calif., 1989.

Section B: Report Content - What to Include

Include the following items as ordered below in the report:

- Title Page
- Executive Summary
- Professional Reflection
- Table of Contents
- List of Figures and /or Tables (if applicable)
- Glossary (if applicable)
- Introduction
- Main Text or Body
- Conclusions
- Acknowledgements
- References
- Appendices

Title Page

Reports submitted without a signature on the title page will NOT be accepted! The title page (see Figure 1 below for an example) 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 must include:

- 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 academic discipline
- **IMPORTANT:** a signature from your employer, approving release of the report to UVic for marking.

University of Victoria
Engineering & Computer Science Co-op
Work Term Report
Summer 2020

Implementing Automated Testing for New Product

Anon Technology Ltd.
New Product Development
Victory, BC, Canada

Just Me
V00000000
W-1
Computer Science
justme@uvic.ca
May 1, 2020

In partial fulfillment of the academic requirements of this co-op term

Supervisor's Approval: To be completed by 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 and Computer Science Co-operative Education Program, or a UVic faculty member or teaching assistant. The report will be retained and available to the student or, subject to the student's right to appeal a grade, held for one year after which it will be deleted.

I approve the release of this report to the University of Victoria for evaluation purposes only.

Signature: _____ Position: _____ Date: _____

Name (print): _____ E-Mail: _____

For (Company Name)_____

Figure 1 - Sample Title Page

Executive Summary

The executive summary is an overview of the entire report that contains salient details to give the reader an understanding of the full contents in the report. It should be **at least 100 words but no longer than one page**, appear by itself on a separate page and should:

- concisely summarize the major points of the main text
- include highlights of the conclusions and/or recommendations

Professional Reflection

Your report will not be accepted if this section is missing and your marker will ask you to resubmit a new report with the included section. This section contains three mandatory subsections and should be at least one page but no longer than two pages. The professional reflection **should be at least 150 words, appear by itself on a separate page(s) and is the only section of the report that may be written in the first person.**

1. **Role Overview**
    - Describe the main technical tasks that were undertaken as a part of your role with the company.
    - Identify if you worked with the development team, testing team etc. and give general details about team collaboration and support.
2. **Technical Skills & Industry Knowledge**
    - Discuss the technical tools used during the work term i.e. programming languages, development platform or framework, e.g. Python, React, Ruby on Rails, and reflect on how the exposure to these tools impacts your technical skills. Include information on any course you have taken during your studies to date that gave you exposure to any of the languages or tools you highlight.
    - Discuss how the work term increased your industry knowledge and provided additional awareness of the associated tasks for the specific role.
3. **Career Goal Impact**
    - Discuss some of the personal (nontechnical) aspects of your work term. For example, you could discuss how working in the particular role may impact your career objectives; if the experience on the work term will impact the remainder of your academic studies (courses to take etc.) and whether the size and dynamics of the team and work environment informed your current or future expectations about the kind of companies you would target in the future.

Table of Contents

A table of contents allows the reader to find the location of a specific section or illustration and **should appear by itself on a separate page**. It is constructed from the major headings used in the report. **Do not list the heading of "Table of Contents" as an item in the table itself**. Figure 2 below is a sample table of contents.

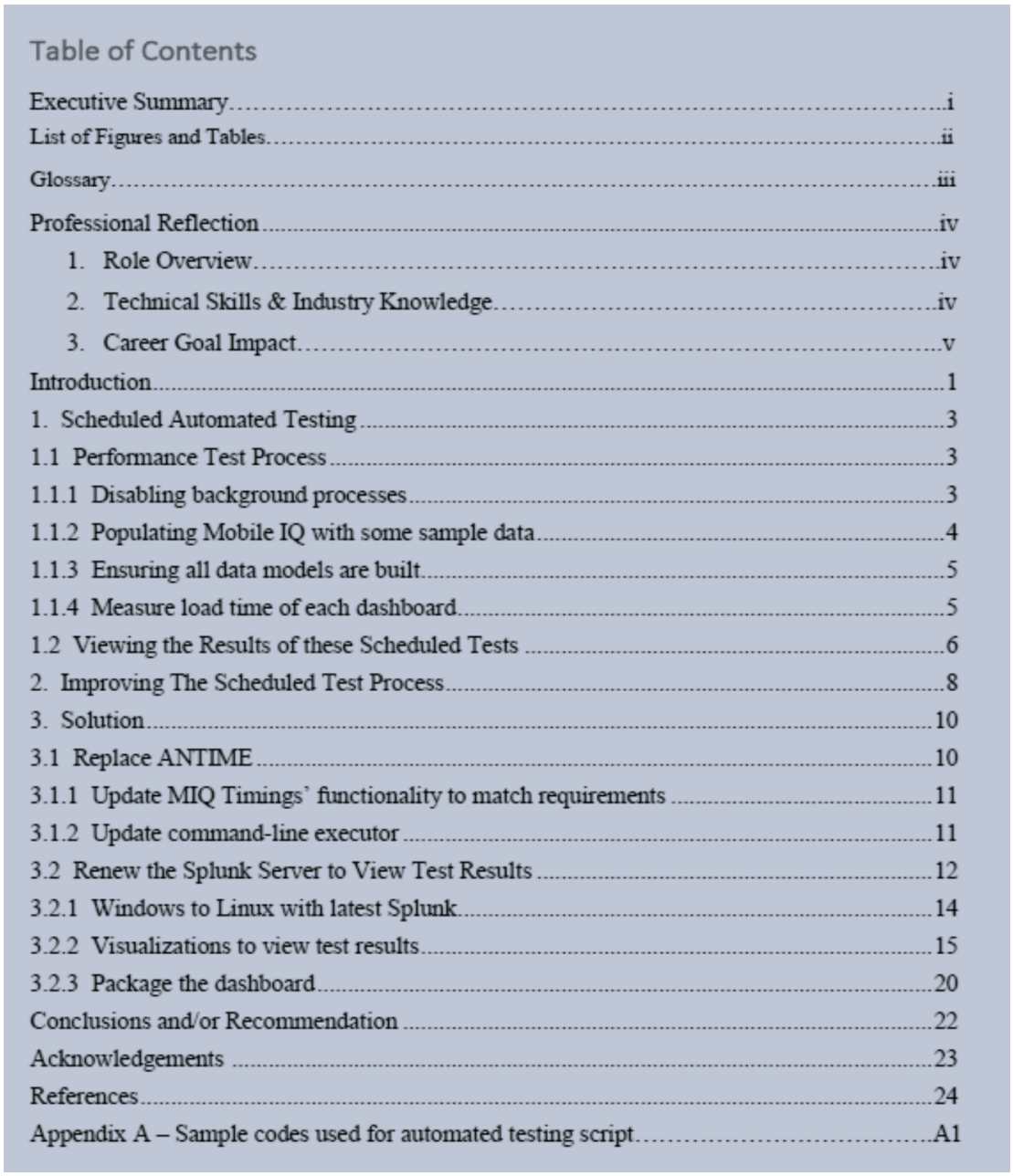
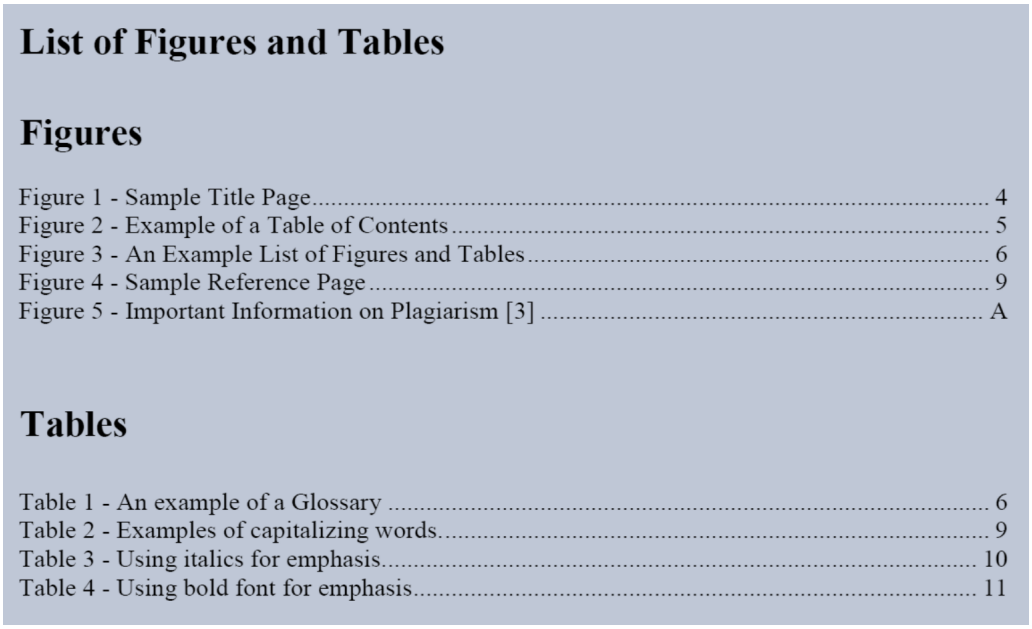


Table of Contents

Figure 2 - Example of a Table of Contents

List of Figures and/or Tables (if applicable)

If figures and tables were used in your report, it is useful to provide a list of these (see Figure 3 below for an example) to help your reader understand your work term report.



List of Figures and Tables

Figures

Tables

Figure 3 - An Example List of Figures and Tables

Glossary (if applicable)

If the report contains acronyms or terms that may not be familiar to your audience include a glossary explaining these terms. The glossary defines specialized technical terminology including acronyms, listing them in alphabetical order and **should appear by itself on a separate page**. 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. A sample glossary is presented in Table 1 below.

Table 4 - An example of a Glossary

Google Closure	A set of tools that helps developers build web applications using JavaScript.
GUI	Graphical User Interface. This interface enables users to interact with electronic devices.
HTML5	Hyper-Text Markup Language. The fifth version of the standard markup language used for creating web pages.
HTTP	Hypertext Transfer Protocol. The protocol used by the web that defines how messages are formatted and transmitted.

1. Introduction

The introduction identifies the subject of the report and states its purpose, significance or objectives. For example, the subject could be the solution to a particular problem, the development, maintenance or testing of some software, the testing of some hypothesis or the analysis of some procedure. In the case of an extended work term, the relevance of this report to previous or similar work should be discussed. Limitations of the report, such as aspects that will not be described, should be included. The introduction should also briefly describe the company or organization where the work was done, and should include a summary of the organizational structure of the remainder of the report. Introductions should never be longer than the discussion. If a significant amount of background information is required, some of the material should be included as an appendix.

2. Main Text or Body

The main body of the report should contain a clear and informative description of what you accomplished on your work term. Include the approach, methodology, techniques or software used. Discuss any possible alternatives. Present any results and any data or information collected, possibly using tables, or figures. Any relevant background theory can be given.

- The main body or text should be divided into numbered sections with headings. Emphasize the technical aspects. What problems did you encounter? What decisions did you make? What were the consequences of these decisions?
- Do not include any non-technical personal experiences (such as social events, issues concerning transportation to and from the work place, or congeniality of co-workers).

3. Conclusions and/or Recommendation

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. If there are recommendations include them in this section.

4. Acknowledgements (optional)

The student's supervisor should be acknowledged, as well as any others who were of help during the work term or who had input to the work term report.

References

Your report must include a list of references that should be on its own page. Any information quoted, paraphrased, or summarized is cited as a reference. 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, which corresponds, to an item 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. Note that each listing includes:

- the name(s) of the author(s)
- the title of the document
    - For book and journal titles, the title is italicized
    - 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
    - For articles, the name of the journal, the volume number and the date of
    - issue
    - For reports, the report number, the name and location of the issuer and
    - the date of issue
    - the page number, when applicable

When citing a reference within the report, the corresponding reference number should be included in square brackets as outlined in the following examples:

- at the end of a sentence just before the period, eg. [2].
- 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].

In the list of references, list the cited references in the same order as they are referred to in your report. The reference numbers appear in square brackets at the left-hand margin. **Figure 4 illustrates the recommended IEEE reference format.**

References

[1] A. Rezi and M. Allam, "Techniques in array processing by means of transformations, " in *Control and Dynamic Systems*, Vol. 69, Multidemsional Systems, C. T. Leondes, Ed. San Diego: Academic Press, 1995, pp. 133-180.

[2] O. B. R. Strimpel, "Computer graphics," in *McGraw-Hill Encyclopedia of Science and Technology*, 8th ed., Vol. 4. New York: McGraw-Hill, 1997, pp. 279-283.

[3] K. Schwalbe, *Information Technology Project Management*, 3rd ed. Boston: Course Technology, 2004.

[4] L. Vertelney, M. Arent, and H. Lieberman, "Two disciplines in search of an interface: Reflections on a design problem," in *The Art of Human-Computer Interface Design*, B. Laurel, Ed. Reading, MA: Addison-Wesley, 1990. Reprinted in *Human-Computer Interaction (ICT 235) Readings and Lecture Notes*, Vol. 1. Murdoch: Murdoch Univ., 2005, pp. 32-37.

[5] T. J. van Weert and R. K. Munro, Eds., *Informatics and the Digital Society: Social, ethical and cognitive issues: IFIP TC3/WG3.1&3.2 Open Conference on Social, Ethical and Cognitive Issues of Informatics and ICT, July 22-26, 2002, Dortmund, Germany*. Boston: Kluwer Academic, 2003.

[6] L. Bass, P. Clements, and R. Kazman. *Software Architecture in Practice*, 2nd ed. Reading, MA: Addison Wesley, 2003. [Online] Available: Safari e-book.

[7] D. Ince, "Acoustic coupler," in *A Dictionary of the Internet*. Oxford: Oxford University Press, 2001. [Online]. Available: Oxford Reference Online, http://www.oxfordreference.com. [Accessed: May 24, 2020].

[8] H. K. Edwards and V. Sridhar, "Analysis of software requirements engineering exercises in a global virtual team setup," *Journal of Global Information Management*, vol. 13, no. 2, p. 21+, April-June 2005. [Online]. Available: Academic OneFile, http://find.galegroup.com. [Accessed May 31, 2005].

[9] A. Holub, "Is software engineering an oxymoron?" *Software Development Times*, p. 28+, March 2005. [Online]. Available: ProQuest, http://il.proquest.com. [Accessed May 23, 2020].

[10] European Telecommunications Standards Institute, "Digital Video Broadcasting (DVB): Implementation guidelines for DVB terrestrial services; transmission aspects," *European Telecommunications Standards Institute*, ETSI TR-101-190, 1997. [Online]. Available: http://www.etsi.org. [Accessed: Aug. 17, 2020].

Figure 4 - Sample Reference Page

Appendices (if necessary)

Appendices may include code snapshots, computer programs and/or output, and supplementary figures or tables that provide additional supportive information. Any information appearing in an Appendix must be referred to in the main text of the report.

Appendix A – Important Information on Plagiarism

Figure 5 below contains the following information from the University of Victoria's calendar 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.

Figure 5 - Important Information on Plagiarism [3]

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, [3].

To be certain that you are using the proper way to cite passages from another source, review the IEEE guidelines [1], 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.