

Guidelines for Writing a Co-op Work Term Report Department of Mechanical & Aerospace Engineering

Objectives:

An essential part of any work experience is the effective communication of the motivation, methodology, and results of that work. All organizations require the ability to communicate clearly and effectively, and a major aspect of this communication is done in the form of report writing. The Work Term Report, moreover, will help students make connections between the skills learned in the classroom and how they apply “on the job.” This allows students to better articulate their skills when seeking employment upon graduation. For more on this, see Carleton University’s [Employability Framework](#).

Evaluation:

The report will be evaluated both on the content, format, and style in which it is presented. Work Term Reports are graded by your Co-op Faculty Advisor as either Satisfactory or Unsatisfactory, and grades are permanently recorded on your transcript for the Work Term Course in which you are enrolled. If you fail to submit a Work Term Report, you will automatically receive a grade of Unsatisfactory on your transcript. While an Unsatisfactory grade for a Work Term Report does not affect your Cumulative Grade Point Averages (CGPAs) or academic progress, it will result in your removal from the Co-op Program. To graduate with the Co-operative Education Designation on the transcript and diploma, Engineering students must complete 4 work term courses, each with a grade of Satisfactory.

Resubmission:

If a report is graded as Unsatisfactory, you may submit a revised version for re-evaluation within 10 days of receiving notice from your Co-op Faculty Advisor. The opportunity to re-submit the report will only be given once.

The Work Term Report must:

- Be targeted at a general reader in engineering
- Be worded such that it can be understood by a person who is unfamiliar with the nature of the work (avoid large amounts of jargon)
- Provide an overall impression of the work (i.e., not overly detailed, however, details should not be sacrificed at the expense of clarity)
- Be written in a clear, readable style. Grammar, spelling, style, and presentation will be evaluated. Students should aim for a professional look with their reports. Accordingly, the report should be entirely free of spelling mistakes and poor grammar. Reports with errors of this kind are returned with Unsatisfactory (UNS) grades. It is a good idea to have a non-technical person read your report for style and grammar.

The Work Term Report must NOT:

- Be written as a user manual
- Use a story-telling or anecdotal approach

- Be used as a vehicle for personal criticism

Report Adaptation:

There may be some instances where the employer requires a report as part of the regular duties of the job. To be acceptable as a Work Term Report, the material must be restructured to conform to the structure given below.

Work Term Report Release Form (Standard and Confidential Reports)

It is recommended that students choose topics and material which exclude any information of a confidential nature. The supervisor must review the content of the report before submission. If the employer authorizes the report to be released, students must submit their Work Term Report by the posted deadline. In cases where the report is deemed confidential, the report must not be submitted to Carleton University and instead be evaluated by the employer. The Co-op Office will provide the employer with grading instructions in these situations.

Deadline:

Please consult your Co-op Work Term course in Brightspace for details on submission deadlines.

Academic Integrity:

Carleton University demands academic integrity from all its members. The Academic Integrity Policy, which governs the academic behaviour of students, defines plagiarism as “presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own”. This includes reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source.

Examples of plagiarism include, but are not limited to:

- any submission prepared in whole or in part, by someone else, including the unauthorized use of generative AI tools (e.g., ChatGPT);
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another’s data or research findings without appropriate acknowledgment;
- failing to acknowledge sources through the use of proper citations when using another’s work and/or failing to use quotation marks.

If plagiarism is suspected, an Associate Dean will conduct an investigation. Penalties include removal from the Co-op Program and a grade of Unsatisfactory in the work term course.

Getting Started: Full Report or Follow-up Report?

All students must submit a Full Report at the end of their first four-month Co-op work term. Full Reports are expected for every Co-op Work Term that follows UNLESS the student’s position is longer than 4 months (i.e., is 8, 12, or 16 months in length, including non-consecutive work terms) and all of the following criteria are met:

- the student has the identical job title;
- the student is with the same employer at the same location.

In such cases, students in all degree programs may submit a “Follow-up Report.” Follow-up Report instructions can be found at the very end of this document.

Example 1: Amy has a 4-month contract at Health Canada in Summer 2022. She then works at IBM for 12 months starting in January 2023 and ending in December 2023.

Work Term 1: Health Canada (Summer 2022) – FULL REPORT

Work Term 2: IBM (Winter 2023) – FULL REPORT

Work Term 3: IBM (Summer 2023) – FOLLOW-UP REPORT

Work Term 4: IBM (Fall 2023) – FOLLOW-UP REPORT

Example 2: John has a 16-month contract with Nokia starting in September 2022 and ending in December 2023.

Work Term 1: Nokia (Fall 2022) – FULL REPORT

Work Term 2: Nokia (Winter 2023) – FOLLOW-UP REPORT

Work Term 3: Nokia (Summer 2023) – FOLLOW-UP REPORT

Work Term 4: Nokia (Fall 2023) – FOLLOW-UP REPORT

FULL WORK TERM REPORT INSTRUCTIONS

For the Full Report, the Main Body of the report is ordered as follows:

- 1) Table of Contents
- 2) Abstract
- 3) Introduction
- 4) Middle Chapters
- 5) Conclusion
- 6) Acknowledgements
- 7) References
- 8) Appendices

1. Content

The report must cover:

- The name of the organization and the division where you worked.
- The main service and products of the organization and the division.
- The purpose and nature of your work placement.
- The relationship between the technical aspects of your work experience and your academic studies.
- The challenges you faced and accomplishments you attained during your placement, including lessons learned.
- The benefits you obtained from the Co-op work.
- The contributions you made to the unit or organization.
- The learning you gained from the Co-op work which cannot be obtained from the University.
- The machines, instruments, tools, and software you used during the Co-op Work Term.

- The influence of the Co-op Work Experience on future study and career objectives.

1.1. Cover Page

Numbering should begin on the Cover Page (i.e., page 1 corresponds to the Cover Page). The cover page must include the following information:

- Explicitly give the title of the report
- Employer
- Name of manager or supervisor and department
- Co-op course code (i.e., MAAE 3999)
- The submission date
- Work Term number (i.e., is this your first, second, third, or fourth work term?)*
- Name and student number of author
- Carleton email address of author
- Name of the Co-op Faculty Advisor

**A Work Term is approximately 4 months in length.*

1.2 Main Body - Full Report

The following sections apply to the Full Report only.

1.2.1 Abstract

The abstract allows the reader to get a quick idea of what is in the report without having to search through the main text. The abstract should present:

- The problem
- The approach
- The results obtained
- The conclusion

Remember that the abstract is considered to be completely separate from the main report and therefore the same information will be reiterated in the report. The abstract should not summarize what the report is but should summarize the content of the report. For example, the following should be avoided: “This report is meant to summarize the activities of my co-op term with Company XYZ. The report begins by providing some background information on Company XYZ. Afterwards, a description of one of my projects is given. Finally, the report details what I gained from the co-op experience.”

1.2.2 Introduction

The introduction is a key part of the report as that is where you generate the reader’s interest. Keep in mind that the reader knows nothing about your project, let alone how well you did it, unless you clearly communicate that information. Accordingly, the introduction to the report should give:

- A brief description of the work environment – Give your company name and location. Describe what the company does, what products it makes or what its responsibilities are.
- A brief description of the projects – Give a clear explanation of what projects you were involved in and how each fit in with company requirements. Give some background to the problems and, if possible, put it in the context of other work being done by the company.

- A brief overview of your contribution to the project – This contribution will be expanded on later in the report.
- A preview of what will come next in the report – The introduction might end with a paragraph that says “Chapter 2 describes work done on the XYZ project while Chapter 3 describes the ABC project. Finally, in the conclusion, the results will be summarized.”

1.2.3 Middle Chapters

The Middle Chapters concentrate on the details of the projects. The nature of the report will depend on the nature of your activities during the work term. Regardless, the Work Term Report should contain a clear indication of what your contribution has been and your assessment of the learning experience with respect to your own learning objectives for the placement. In general, the nature of a work placement falls under one of the following four categories:

- 1) Duties consist of one or two well-defined projects. Base your report on a detailed account of the projects.
- 2) Duties consist of many small projects done during the term. Base your report on a couple of the more important projects and briefly describe the others.
- 3) The work was not clearly project-based but, for example, consisted of a variety of duties. The report should:
 - a. Focus on the technical aspects of your job
 - b. Emphasize your place in the organization
 - c. Identify some of the problems you were called upon to solve
 - d. Concentrate on your main contributions
 - e. Avoid making your report into a day-to-day diary
- 4) The nature of the work makes the topic of a report difficult to choose. You should consult the Co-op Faculty Advisor to determine a subject. The Co-op Faculty Advisor should be contacted early in the work term.

Regardless of the nature of your work, be sure to discuss the methodology involved in doing the projects (i.e., go into detail about the methods used to solve or address the problem/project and then indicate the results).

1.2.4 Conclusion

The Conclusion is a summary of the results of the projects discussed in the Middle Chapters. Discuss possible future use of work and recommend possible future directions in which your work might be taken by your successor. What do you think are the next steps to take?

1.2.5 Acknowledgments

Acknowledgments include:

- Credit for use of copyright material
- Acknowledgement of assistance from colleagues and others
- Contributions received, etc. For example, “I would like to thank my supervisor, Ms. Rachael Rashid, for all her help during my work term.”

1.2.6 Appendices

Items such as code and user manuals should never be in the main text. These should be put into Appendices. These may, of course, be referred to in the main part of the text. In the context of the Work Term Report, such things as code and user manuals would rarely be required, as they would imply a level of detail far beyond that needed in a general report. This is not, however, an absolute rule. If you developed an algorithm that you wish to highlight, it may be given in the body of the report. Likewise, items that should be in the main body of the report (e.g., most figures, tables, and equations) should not be placed in the Appendices.

2. Format

All reports must:

- Be double-spaced
- Use a standard 10 or 12 point font (e.g., Times New Roman)
- Use a standard margin size (1 inch or 2.54 cm)
- Use a space between subsequent paragraphs

2.1 Cover Page

The Cover Page must:

- Be a single page

2.2 Main Body - Full Report

The Full Report must:

- Be approximately 8-10 pages long (excluding Cover Page and Appendices)
- Be organized into sections with headings
- Have headings that are flush left
- Provide at least 2 lines of space above headings
- Capitalize main headings and use lowercase for subheadings
- Number each page starting with the Cover Page with a page number
- Have page numbers located on the upper right-hand corner of each page
- Start numbering on the Cover Page (i.e. page 1 corresponds to the Cover Page)
- Explicitly cite in the text any figures, tables, equations, references, or appendices (e.g., use Figure 1, Table 1, Eq. [1] to cite figures, tables, and equations, respectively)
- Have tables, figures, equations, references, and appendices arranged in the sequence of citation in the text
- Have an Abstract of no more than 200 words in length
- When discussing your projects, in the Middle Chapters, use one chapter per project
- Have a Table of Contents that lists principal headings as they appear in the Full Report (including, appendices, if applicable) together with the page numbers on which those headings occur
- Not list preceding sections in the Table of Contents

2.2.1 References

When writing a technical paper of any kind, it is essential to give credit to others whose work you are referring to and using. Thus, if you use an algorithm or someone's idea, you should indicate the source. Where references appear in the text, they appear as numbers in line with the text (not as superscripts)

in square brackets. Punctuation falls outside of the bracket. References should be numbered sequentially as they appear in the report. For example:

- Smith [4, 6] has demonstrated;
- From 1985 until present... [1], [5, 6], [7-13];
- as found by Brown [1] and Smith and Jackson [14];
- Jackson et al. [15], where three or more authors are listed, use the last name of the first author followed by "et al."

References should be listed in the reference section according to their number in the following format:

- [1] A. Misra, I. Finnie, On the size effect in abrasive and erosive wear, *Wear* 65 (1981) 359-373.
- [2] J. A. Williams, *Engineering Tribology*, Oxford University Press, Oxford, 1994, p.468.
- [3] G. W. Stachowiak, Numerical Characterization of wear particle morphology, in: I.M. Hutchings (Ed.), *New Directions in Tribology*, Mechanical Engineering Publications Ltd., Bury St Edmunds, pp, 371-389, 1997.
- The information from a website can be cited with the reference provided directly in the context, e.g., Deloro Stellite Inc. has provided materials to solve industry's most demanding conditions (<http://www.stellite.com>).

Notes:

- Personally acquired information should be referred to as "private communication,"
- If an author is not listed, cite as Anon.

2.2.2 Appendices

Each appendix should have a title (use a sub-heading). Additionally, when more than one appendix is used, designate them as Appendix A, Appendix B, etc. All tables, figures, and equations in Appendix A should be preceded by "A-", those in Appendix B should be preceded by "B-", etc. When only one appendix is used, omit the letter prefix. Appendices are numbered separately; 1, 2, 3, etc. if there is only one appendix and A-1, A-2, etc., B-1, B-2, etc., if there is more than one appendix.

2.2.3 Footnotes

Footnotes may be used when you wish to make a comment which would otherwise break the flow of the text. Footnotes should not be used for references. In the text, symbols should be used to designate footnotes. The symbol should be placed at the upper right of the appropriate word in the text, and at the beginning of the footnote. Footnotes should be typed single-spaced at the bottom of the page. The footnote should start with the symbol used in referencing it. If there is more than one footnote on a page, successive footnotes should follow without line-spacing; they should be indented at the beginning. Above the footnotes, a line extending one and a half inches from the left margin should be placed.

2.2.4 Equations

Equations should be typed in the standard format of Microsoft Word. Symbols used for the first time should be explained. Number those equations which are part of a series or which are referred to in the text. Use consecutive Arabic numerals; for example, 1, 2, or 1-1, 1-2, 2-1, etc. When used, the equation numbers should be enclosed in parentheses and placed in the lower right corner of the equation. Align the equation numbers.

2.2.5 Tables

Tables should be consecutively numbered (e.g., 1, 2, 3, etc.). When feasible, design tables for reading in upright position - not sideways. Break lengthy, complicated tables into separate smaller ones. Combine related tables on single sheets when they will fit comfortably. Brief explanatory captions should be on all tables in addition to references or explanations in the text. Captions should be centered atop tables. The word "Table" should be capitalized. If there is more than one line in the caption, the additional lines should be typed single-spaced, e.g.: "Table 1: Evaluation of new herbicides and treatments for weed control in corn".

FOLLOW-UP WORK TERM REPORT INSTRUCTIONS

Follow-up Reports consist of a cover page and the report itself, which must follow the structure set out below. The "body" of your report must be between **2 and 3 double-spaced pages in length**. *You MUST include your original Full Report as well as any previous Follow-up Reports at the end.*

The report must be structured as follows and contain the following sections:

- Cover page (same information as Full Report – see above).
- 1. Contributions
 - 1.1 Relation to academic studies
 - 1.2 Career development

Since you have already submitted your Full Report and have reflected on your early Co-op experiences, you are now asked to provide an update and expand your answers to the questions posed below. A key part of the Co-op experience is that you think about the bigger picture; how has this work experience enhanced your skills and what do you think your main contributions were to the organization? How does the work relate to your academic studies? How has it influenced your overall career options?

1. Contributions

Summarize your contributions since your last Work Term Report. To what extent did your work further contribute to the organization's mandate?

1.1 Relation to academic studies

Since writing your last Work Term Report, relate your Co-op Work Experience to your previous academic studies, and/or to any courses you took in the last 4 months. Describe the learning you gained from your most recent work term which could not be obtained in the classroom. What additional course work would have better prepared you for the work experience?

Career development

Elaborate on the main lessons that you learned during your Co-op experience. Discuss how the Co-op experience has influenced your future study and career objectives. Describe your experience, what you learned and/or accomplished. Which of the ten [Career Competencies](#) did you build on during your work term?