Fall 2026
COURSE OUTLINE – ENGI 004W

This Outline provides information on the requirements, expectations, and evaluations for Work Term 4. It should be reviewed very carefully to ensure students' work progresses smoothly. Additional forms and information can be found on the co-op webpage at Work Term Dates and Forms | Co-operative Education | Memorial University of Newfoundland (mun.ca)/.

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CRITICAL DATES (for all work terms*):

Monday, 31 Aug 2026	Work Term Begins. Complete *Work Term Confirmation* online in MyMUNLife.
Friday, 18 Sept 2026	Deadline for submission of *Work Term Objectives* Complete the form and upload online in MyMUNLife.
Friday, 23 Oct 2026	Deadline for submission of *Work Report/Presentation Outline*. Complete online in MyMUNLife.
Friday, 18 Dec 2026	Work Term ends and deadline for submission of the *End of Work Term Feedback Form* and communication component documents.
Thursday, 7 Jan 2027	Academic courses begin for Winter Semester.
January 7,11-13 2027	Oral Presentations. Students who are presenting must be prepared to present at this time. Schedule will be available before the end of the work term.

STATEMENT OF EXPECTATIONS OF STUDENT CONDUCT

Like Professional Engineers, engineering students are expected to behave in a professional manner at all times. Students are encouraged to conduct themselves in a manner consistent with the the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL) code of ethics. MUN has two sets of rules to address inappropriate behaviour by students, one pertains to academic offences and the other to non-academic offences. Both sets of rules can be found in the 'Regulations' section of the University Calendar. It is strongly recommended that students read and follow these rules because the penalties can be severe, the severest being expulsion from the University.

Organizations typically provide internet access to their employees and work term students. These organizations often have specific policies governing internet usage, including personal use. These policies would normally be explained during the job orientation, typically during the first few days at work. Students must follow these policies and should expect that their employer will monitor usage of the internet during the work term. Students should also limit their use of personal cell phones during working hours as they may distract from assigned work activities. If employers do not address these issues during initial orientation, it is strongly suggested that students ask their supervisor for specific guidance.

Students should also be aware of and follow their employer's rules around the use of products such as recreational or medicinal drugs and alcohol which may be legal to use but may not be permitted by their employer. The use of such products may affect a student's employability.

PLAGIARISM

Plagiarism is a serious academic offence at Memorial University. Cases involving suspected plagiarism in a student's work term deliverables will be addressed as per the Procedures for Resolution of Alleged Academic Offences by the Senate Committee on Undergraduate Studies, stated in the University Regulations section of the Memorial University Calendar.

Original work, completed wholly by you, is expected to be submitted in this course. The use of artificial intelligence tools, such as ChatGPT is not permitted for work term deliverables to the Co-operative Education Office and would be considered Academic Misconduct.

The submission of work that has been created by generative artificial intelligence (GAI) tools and presented as a student's original work is considered an academic offence in this course.
Students **may not** use GAI in any of the following ways:

- Submitting an assignment presented as their own. This includes but is not limited to essays, research papers, computer code, and solutions to mathematical problem.
- Using GAI as an aid to completing an assignment, such as paraphrasing from GAI content.

COURSE DESCRIPTION: ENGINEERING 004W

Engineering Work Term 4 requires students to engage in complex facets of engineering. Participation in their selected engineering discipline is expected. Students should be able to contribute independently to design and/or problem solving processes, understand their responsibility to society and the environment, understand project management strategies, think critically, and use engineering tools appropriately. The level of responsibility should reflect their academic background and experience. Good teamwork skills are expected and leadership skills may be developed.

004W LEARNING OUTCOMES / SKILLS EXPECTATIONS

There are a key set of skills that will be evaluated based on the End of Work Term Feedback Form. These skills are demonstrated in a number of ways, and considered important to an engineer's abilities. The expectations for these skills increase with progression through the engineering education program. During more junior work terms (e.g., work terms 1 and 2), students should demonstrate these skills at a beginner level, working their way to demonstrating the skill at an intermediate level (e.g., during work terms 2 and 3), before demonstrating the skills at a more advanced level in senior work terms (e.g., work terms 4 through 6). Students who meet the expectations listed below would get a rating of 3 on the 1-5 point rating scale. Exceeding these expectations would result in a rating of 4 or 5 for that skill/quality. Conversely, if a student does not meet the expectations they may receive a 1 or 2 rating for that skill/quality. The Skills Expectations for Work Term 4 are listed below:

1. **Initiative:** Take immediate action without prompting in completing assigned tasks or projects, and show motivation in pursuing work beyond assigned tasks
2. **Organization and Planning:** Prioritize work assignments based on their importance, and plan tasks and projects over a short- to long-term basis, using time efficiently and productively to complete work

3. **Quality of Work:** Produce very good quality and thorough work with few errors, independently checking work prior to completion
4. **Productivity:** Independently and quickly learn material to consistently complete an expected amount of work on time or earlier
5. **Written Communication:** Communicate complex ideas and information in writing clearly, concisely, and in a very organized manner, with minimal review and editing required
6. **Verbal Communication:** Verbally express complex ideas and information, clearly, concisely, and in a very organized manner, with clarification rarely being required; good public speaker
7. **Work Independently:** Assume responsibility for tasks and projects and work independently, seeking input from others when appropriate
8. **Teamwork:** Be an effective team member by working collaboratively and cooperatively with others, assuming responsibility and accountability for tasks and one's assigned role, and demonstrating leadership as required to provide direction to a small group of people
9. **Problem Solving:** Critically analyze engineering problems, evaluate alternatives, and recommend best course of action
10. **Project Management Techniques:** Use appropriate project management techniques as required, and incorporate principles of change and risk management into work
11. **Safety and Environment:** Understand and contribute to the importance of a safe work culture, demonstrate safe work practices, and understand the impacts of engineering on health and the environment
12. **Ethics and Integrity:** Demonstrate very good judgment and individual accountability in resolving ethical issues, avoid questionable conduct and conflicts of interest, and display honesty and fairness in interactions with others
13. **Appreciation of Diversity**: Support diversity and inclusion in the workplace; respectful and work well with others when there are individual differences
14. **Adaptation to Organization's Rules and Policies**: Independently recognize, understand, and follow an organization's rules and policies
15. **Response to Supervision:** Openly accept direction and feedback and respond appropriately, immediately incorporating feedback into current and future work
16. **Dependability:** Gain responsibility and the trust of others by being reliable and consistent in completing work and in meeting commitments, while demonstrating a strong work ethic

WORK TERM DELIVERABLES

Students must submit on the date indicated above the following for Work Term 4

Work Term Confirmation
Work Term Objectives
Work Report Outline
Comprehensive Technical Report
End of Work Term Feedback Form

WORK TERM CONFIRMATION FORM

The ECEO depends on the Work Term Confirmation Form to confirm that students have arrived safely at work and for all means of contact while they are on their work term. **It is extremely important that the form is completed online in MyMUNLife within a couple of days of starting work.** Although the on-line form will appear as 'Approved' when the position is created, students must still input the required information. The WTC must be updated whether the student is in a new position, or is returning to a previous employer. If any of the information changes during the term, it should be updated online and the student's ASM-CE (Academic Staff Member in Co-operative Education) notified.

WORK TERM OBJECTIVES

Within the first three weeks of the work term, the student, in consultation with their supervisor will establish performance and personal/professional objectives for the work term. The objectives should also include identification of specific skills the student should develop in order to perform the duties and responsibilities of the position. Through this process, the student will acquire new skills or further develop existing skills required in the workplace. The key ingredient to a successful work term is the student's ability or openness to learn and/or further develop work related skills (see the Student Success Guide for more details on writing SMART Objectives). The student should submit a copy of the **Work Term Objectives** online in MyMUNLife and share a copy with their supervisor for review later in the term. Students who start after the official first day of the work term should complete their objectives within the first two weeks of work.

WORK REPORT OUTLINE

The Work Report/Presentation Outline shall be submitted via the form in MyMUNLife for review and topic approval by the stipulated deadline date (typically by the end of the second month of the work term). By that time, students are expected to have developed an appreciation and insight into the operations of their job to identify a potential topic and have it agreed to by the supervisor. The student should select a topic that is relevant, manageable, doable, and commensurate with their level in the engineering program.

To allow the assigned ASM-CE to provide formative feedback to the student after review the Work Report Outline shall consist of:

- a title – appropriately reflecting the planned scope and topic
- a purpose - why the topic was selected, what it will cover, and how it will be useful
- a preliminary Table of Contents - identifying the major sections and subsections

COMPREHENSIVE TECHNICAL REPORT

The Comprehensive Technical Report and its evaluation criteria are described in the appropriate appendix below.

Your report submission must be in the form of a single (one) professionally created PDF file that includes all required components.

CONTACT DURING THE TERM

Students will be interviewed on-site by their assigned ASM-CE on most work terms. The ECEO combines this activity with an on-going program of marketing co-operative education to potential employers. These on-site visits are typically scheduled in the middle third of the term. If questions arise early in the work term, students should contact the ECEO right away.

The Work Term confirmation information entered in MyMUNLife by students during the first week of work will allow the ECEO to communicate with students and their supervisors during the term.

WORK TERM AWARDS

Students are encouraged to give their best effort to all aspects of the work terms, which usually present many opportunities to examine the role and contribution of professional engineering to society. The chance to compare theory from the classroom with practice in the field can be very rewarding.

Work Term awards are an incentive for students to give their best effort each semester and are a way for employers to recognize their students. Employers are encouraged to nominate exceptional students for various awards each semester.

Please refer to the Engineering Co-operative Education Student Success Guide for details on awards that may be relevant.

CONFIDENTIAL REPORTS/PRESENTATIONS

Students should discuss their work report or presentation topics with their supervisors early in the term and determine if any of the material is confidential because all required work term communications components must be submitted to the ECEO as the student's assigned ASM-CE is solely responsible for grading them. When sensitive or proprietary information is involved, the Non-Disclosure Request Form (NDRF) should be submitted. Confidential or proprietary information must not be included in any communications deliverable unless permission has been received from the employer to submit the confidential material. If there are ongoing concerns about confidential material, the student should consider changing to a less sensitive topic.

Once the NDRF is submitted, the student's ASM-CE will complete and sign an agreement that provides assurance that no information will be transmitted to any other person. Students should not submit confidential materials unless the ASM-CE has already signed a Non-disclosure agreement. All permitted confidential submissions must be watermarked or stamped "Confidential" on every page, including the front matter.

Some communications components may now be submitted electronically. Note that it is difficult for ECEO to guarantee the appropriate destruction of these electronic files. It is very important for students to discuss electronic submissions with their employers so the employer understands these limitations around confidentiality. If they are not comfortable with electronic submission of a confidential report or presentation package, the student may need to consider amending their topic or the material included.

Following an opportunity to review by the student, the communications component will be destroyed by the ECEO, the ASM-CE will follow MUN Information Technology office's best practices to delete any electronic submissions.

TIMELY SUBMISSION OF DELIVERABLES

As students progress through the Engineering program they learn that meeting deadlines is part of the role of a professional engineer. In the case of reports and to some extent other work term documents, students should realize there are really two clients involved – the employer and the University, with responsibilities to both. Students are often challenged to meet the expectations of both these clients and this is a further measure of their ability to manage time and resources.

ASMs-CE depend on feedback from supervisors, with the last two weeks of work being a convenient time to complete these documents. Students should make an effort to discuss their report and performance during that time. The timely submission of all work term documents is taken into consideration in the performance evaluation. Receipt of the report and feedback documents allows the Engineering Co-operative Education Office to complete overall evaluations and meet the Registrar's deadline for submission of grades.

It is suggested that a final version of the report or presentation summary/slide package be submitted to the student's supervisor at least two weeks before the work report deadline. After the document is checked and cleared for proprietary information it should be submitted to the ECEO in the required format. The absolute deadline is the published end date of the work term, after which documents are considered **late**.

EXIT INTERVIEWS

Often the opportunity to grow and take on an increased level of responsibility comes with returning on a subsequent work term with an employer. This should be balanced by the potential to gain a greater diversity of experiences during the co-op program. If the nature of the work term and the potential for additional learning exists, students are encouraged to consider returning to work with the same employer on a subsequent work term.

At the end of the work term, students are encouraged to arrange an exit interview with their employer and, separately consult with their ASM-CE to review the work term and discuss prospects for the next work term. The employer meeting would normally include the supervisor and a human resources representative.

CONTACT INFORMATION:

Telephone: 709-864-8816
E-mail: coopeng@mun.ca

Mailing address:
Engineering Co-operative Education
Memorial University of Newfoundland
S.J. Carew Bldg., EN-4021
St. John's, NL A1B 3X5

APPENDIX A WORK TERM EVALUATION

The work term will be evaluated on the basis of the work term communications component and work term performance, as described below.

Communications Component

The written (or oral) communication component is intended to develop the following skills:

- the ability to research the subject appropriately, to conduct the necessary analysis and to effectively substantiate conclusions and recommendations,
- the ability to summarize findings and communicate, in writing or orally, in a professional manner, and,
- the ability to apply concepts learned in the academic environment to learning objectives in the work environment.

The communication component will be evaluated by an ASM-CE or delegate.

Evaluation of the communication component will result in one of the following marks:

Outstanding - the communication component quality is exceptional; there is clear evidence of the following:

- comprehensive knowledge of the subject matter and principles used,
- high degree of originality and independence of thought,
- superior ability to organize and critically analyze ideas,
- outstanding ability to communicate,
- good planning,
- outstanding effort put into the production of the communication component.

To be considered outstanding, the communication component should have:

- all required sections completed, including letter of transmittal, summary and references,
- very few spelling, grammar and word processing errors,
- a professional presentation, and
- technical content verified by the employer.

Above Expectations - the communication component is of good quality with evidence of:

- substantial knowledge of the subject matter,
- moderate degree of originality and independence of thought,
- good ability to organize and analyze ideas,
- ability to communicate clearly and fluently,
- good planning,
- substantial effort put into communication component production.

Satisfactory - the communication component meets minimum requirements with evidence of:

- acceptable grasp of the subject matter,
- some ability to organize and analyze ideas,

- ability to communicate adequately,
- acceptable planning, and
- acceptable effort put into report production.

Marginal Pass - the written communication component has a number of weaknesses but would meet expectations after modifications are made. The communication component should, as a minimum, demonstrate evidence of:

- adequate knowledge of the subject matter,
- adequate ability to organize and analyze ideas,
- adequate ability to communicate,
- adequate planning, and
- adequate effort put into communication component production.

Fail - the communication component is unacceptable showing evidence of one or more of:

- inadequate knowledge of the subject matter,
- failure to complete required work,
- inability to organize and analyze ideas,
- inability to communicate,
- inability to plan the production of the communication component,
- inadequate effort put into communication component production,
- some or all of the report is plagiarised

At times, an ASM-CE may request that the student revise and resubmit their work report rather than be given a mark of ***Fail***.

- When a student has been given the opportunity to resubmit the communication component, the student will not be eligible for a mark other than ***Fail*** or ***Marginal Pass***.
- Normally, a student will be given two-weeks to resubmit the communication component.
- If the communication component is not revised to an acceptable standard within the specified time, a ***Fail*** will be recommended.

Work Term Performance

Work term performance is based upon several elements:

- An ASM-CE's assessment of the employer's End of Work Term Feedback Form. This form includes: feedback on the key set of skills outlined in the Learning Outcomes/Skills Expectations section above; and the ability to meet the objectives set at the beginning of the work term, taking into account the challenges and opportunities available to the student.
- Information gathered from contact with the student, employer, and others in the workplace.
- Timely receipt of all work term documentation by established deadlines, as the ability to plan and meet deadlines is essential to a Professional Engineer.

The performance marks below take into account how well the student meets these elements.

Outstanding - the student has successfully completed an excellent work term. Considerations include:

- exceeds employer's expectations in all areas,
- maintains an excellent working relationship with the ECEO,
- all documentation submitted in a timely manner.

Above Expectations - the student has successfully completed a very good work term. Considerations include:

- exceeds or meets employer's expectations in most areas,
- maintains a good working relationship with the ECEO, and
- all documentation received.

Satisfactory - the student has successfully completed a good work term. Considerations include:

- meets employer's expectations,
- maintains an acceptable working relationship with the ECEO,
- most documentation received.

Marginal Pass - the student meets the minimum requirement of the work term. The student will be monitored and is expected to improve in the next work term. Considerations include:

- did not meet all employer's expectations,
- working relationship with the ECEO needs improvement,
- some of the documentation late or not received.

Fail - the student's performance is unacceptable, demonstrated by one or more of:

- did not meet employer's expectations,
- poor working relationship with the ECEO, and
- most or all of the documentation not received.

Overall Work Term Evaluation

The overall evaluation of each work term will be based upon the communication component and work term performance and will result in the recommendation of one of the following grades:

Pass with Distinction - to receive a recommendation of *pass with distinction*, a student needs to obtain an evaluation of *outstanding* in both the communication and work performance components of the work term.

Pass - to receive a recommendation of pass a student must achieve an evaluation of *marginal pass* or better in both the communication component and the performance component of the work term**.**

Fail - a student receiving a *fail* in either or both the communication and performance components of the work term will receive a recommendation of *fail*.

For promotion from the work term, a student must obtain ***Pass with Distinction*** or ***Pass.***

A student who receives a grade of Fail on any work term will be required to repeat that work term prior to graduation regardless of whether the work term is mandatory or elective.

Students should be aware of the University's policy on plagiarism. More information can also be found on the Writing Centre's web page https://www.mun.ca/engineering/undergraduate/technical-communications/avoiding-plagiarism/

APPENDIX B COMPREHENSIVE TECHNICAL REPORT

Introduction

The technical report is an important document for engineers. Engineers are expected to write reports throughout their careers. These documents may be written to analyse something, describe an existing process, or to document a decision. During their work terms, students may be expected to complete several different types of reports.

The Comprehensive Technical Report work term communications deliverable is typically based on a project that the student has worked on for a significant portion of their term.

This appendix describes the general format for a Comprehensive Technical Report. The format is very similar to that of a Short Technical Report, such as that written in Work Term 1.

For useful resources to assist with the completion of the Communications Component deliverable, see the Brightspace shell here: *Work Term Communications Components – Online Support Materials*

The Comprehensive Technical Report

The Comprehensive Technical Report should be based on some aspect of the student's job or the industry in which they are working. Ideally, the report should illustrate a substantial amount of independent student conducted research, design, or analysis to permit the drawing of detailed conclusions and recommendations; however, if the student's placement does not allow such a study, some other form of report, such as an operating manual or software documentation may be permissible. The report must reflect/contain a significant amount of the student's original work. It must also contain a significant amount of the student's writing, rather than the student using a prescribed template that limits description and analytic discourse.

The word 'comprehensive' indicates that the report explores a topic thoroughly and goes beyond just describing a process or concept, as was required in earlier work terms. This report is meant to substantially address a topic.

Examples of comprehensive technical reports include (the list is not exhaustive):

- Feasibility study of a design, project, or technology - a study based on testing and analysis that presents information to determine if a proposed project or solution should proceed.
- Evaluation of a process/product - describes how a process/product was evaluated, assessed, or monitoring, presents findings, and makes recommendations about future decision-making and process/product improvement.
- Environmental impact review/environmental assessment – an evaluation of the anticipated environmental impacts of a project, considering positive and negative socio-economic, cultural, and health impacts.
- Project/Progress report – an assessment of an ongoing project that outlines the goals that have been met, resources utilized, challenges faced, and if the project is projected to be completed on time and on budget, decision-making about the project's future.

- Investigation report – informs a reader about an incident; identifies and defines the problem, describes the investigation methods, the outcomes, and proposes actions to mitigate the situation.

- Research paper – describes the writer's own research on a topic, including the analysis and interpretation of findings.

For students interested in submitting, as their communication component, documents such as a user's or operations manual, a procedure, or a test plan, the content must be based on work that was substantially completed by the student.

There are many good reference books available either in a book store or library to assist in report writing. One example is "Writing in the Technical Fields: A Practical Guide", by Thorsten Ewald, published in 2017. Students are encouraged to select a good reference book and use it throughout their undergraduate career.

Topic

Students should discuss their topic with their supervisor early in the term, as the supervisor may have a particular topic or project that the organization would like documented. Sometimes a report may not be required by the employer, which allows the student the opportunity to explore a topic of their interest. If the student has difficulty selecting a topic, they should discuss it with their ASM-CE.

An outline of the proposed report should be submitted to the ECEO using the Work Report/Presentation Outline form in MyMUNLife.

General Report Guidelines

Please follow the guidelines listed below:

- Work Term 1 report should be a **minimum of 4000 words** (excluding illustrative figures and tables).
- When determining report length, word count only includes the body of the report (introduction to conclusions or recommendations, if included). It does not include the back matter (reference list, appendices), or any front-matter (material before the introduction).
- For reports longer than twice the indicated minimum word count above, students should contact their assigned ASM-CE to discuss further.
- Use 12 point font. Use a professional font such as Arial, Times New Roman, or similar. The same font should be used throughout the report, including the letter of transmittal.
- Use double spaced lines and leave a 1" margin on all sides.
- Acronyms should not be used in the Executive Summary and must be introduced the first time they are used in the body of the report even if a List of Acronyms is included.
- Students are expected to write concisely, but grades may be affected for reports that do not meet the required minimum length.
- Pages should be numbered, restarting with page 1 for the Introduction. Page numbers should be on each page.
- Sections and sub-sections should be numbered.
- References/bibliographies/etc. should be sections following the body of the report.
- References should be credited using in-text citations throughout the report.

- Technical reports (Work Terms 1 and 4) written as part of the communications requirements for work terms must be written in a formal technical language style. This means that students should use concise technical language, avoiding vague, meaningless words, redundant phrases, hyperbole, colloquialisms, and jargon, and write from the **third person** point of view.
- Terms such as "I" and "We" should only be used in the letter of transmittal, and contractions are not permitted.

Structure

The structure of a formal report, in the order that the main sections are found, is as follows:

- Cover Page
- Letter of Transmittal
- Title Page
- Executive Summary
- Table of Contents
- List of Illustrations @
- List of Acronyms @
- Statement of Scope@
- Introduction
- Main Sections and Subsections
- Results@
- Conclusions
- Recommendations
- List of References
- Bibliography @
- Appendices @

Items marked @ above are considered optional based on the report; other sections are required for most technical reports.

Very often parts marked @ above are combined with one of the major parts; for example, the scope and foreword may become part of the introduction. They may also be combined, or they may be eliminated entirely; for example, acknowledgments, list of illustrations, a separate statement of scope, and bibliography are often not included. Whether these parts are included as separate items, combined with one of the major sections or with each other or left out entirely depends on the objectives of the writer, the complexity of the report and the needs of the reader. They should not be included unless there is a reason for doing so.

Detailed Description of Technical Report Sections

Cover Page (and Report Title)
Provides a binding for the report, and identifies the report title and writer of the report.

Guidelines:

- The cover page of the report may be plain, or specially designed for the project.
- It may be cardstock with the printing on it, or under a protective plastic page.
- It is analogous to the cover of a text book, and limited information is provided.
- Should include the report title, the name of the author, and student number at a minimum.

Report Title
The title is an important feature of the report. Words like evaluation, feasibility, progress, status, and impact are useful in the title.

Guidelines:

- It should provide a window into the subject.
- It should be specific enough to give the reader a good idea of what the report is about but not so long that it is confusing.
- It is acceptable to take certain grammatical liberties in a title if it improves the result. For example, the following title "The Design and Construction of Concrete Structures" may be written as "Concrete Structures: Design and Construction."

Letter of Transmittal
A brief covering letter addressed to the first official reader (usually an ASM-CE).

Guidelines:

- Should be bound with the report inside its cover.
- Is addressed to the person for whom the report was prepared (ASM-CE).
- Provides a reference to the reason the report was prepared, the scope of the report, and a brief digest.
- It may draw attention to specific aspects of interest to the intended reader.
- A letter of transmittal must accompany each work term communications deliverable.
- If permitted, a student may choose to use company letterhead or should include the employment address as a return address.

A typical letter is included in the Work Term 1 Course Outline.

Title Page
Identifies the topic and ownership of the report.

Guidelines:

- The full title of the report should be centered and placed at the top of the page.
- The name of the person for whom the report was prepared and the name of the organization for which the report was prepared is placed under the title.
- The name of the originating organization and name of the person preparing the report is placed third on the page.
- The date the report is presented (or issued) and any other identifying reference, such as a report number, is placed on the bottom of the page.
- The title page should be neat and simply laid out so that the above four essential elements are clearly seen.
- The title page should have visual appeal and a professional appearance.

Executive Summary
Provides a **one-page** summary of the entire report. No reference is made to any part of the report; an Executive Summary is complete unto itself and is the most widely read section of the report. Many readers rely on it to decide if they need to read the full report.

Guidelines:

- The Executive Summary must stand on its own; it is based on the report and should not include any information, conclusions or suggestions not stated in the report.
- To maintain the Executive Summary's ability to stand independently from the report avoid phrases such as 'The report includes…'
- It should not cite any references nor refer to any figures or tables.
- It is placed after the title page and before the Table of Contents.
- It is the first numbered page of the report being given by the Roman numeral 'i'.
- It should be on a page by itself and must not exceed one double-spaced page.
- If the material does not require the full page, it is centered top to bottom to give a neat appearance.
- It must be brief, but complete; it should present the essentials of the report, and not refer to it.
- It should contain a statement of some or all of the following:
    - what the report is about (purpose, scope, problem, background),
    - the work that was undertaken,
    - the results obtained,
    - the main conclusion, and
    - the main recommendations and their costs.
- It is prepared after the report is written.

Table of Contents

Provides a quick guide to the contents and organization of the report and helps the reader locate specific information quickly.

Guidelines:

- A report must contain a Table of Contents.
- It is located just after the Executive Summary as page 'ii' of the report.
- The headings of each main section and subsection are listed according to the page on which they begin.
- Appendices are usually separated from the other contents and are designated by numbers or letters, the appropriate title or heading and the page number.

List of Illustrations

If the report uses many illustrations (charts, graphs, pictures, etc.), it is best practice to provide a List of Illustrations after the Table of Contents to help the reader find specific illustrations.

Guidelines:

- The List of Illustrations should include the titles of the illustrations along with the related page numbers.
- The list of Illustrations can also be divided into separate lists: a List of Figures and a List of Tables.
- Citations for the illustration do not need to be included in the List of Illustrations.

List of Acronyms

Easily identifies a large number of acronyms. A report that contains a large number of acronyms may include a list of them at the beginning of the report.

Guidelines:

- This list should be in alphabetical order of the acronym in order to make the acronyms easier to locate.
- Acronyms must still be typed out in full the first time they are presented in the body of the report.

Acknowledgments

Provides a statement of thanks or recognition to those who have assisted in the development of the report.

Guidelines:

- A separate section for acknowledgments can be justified only if there are a great many persons or organizations to be given credit. It is more typically used for books and publications than for reports. Acknowledgments, if given, should be specific.
- Statements like 'I would like to thank everyone who assisted me with this report' are meaningless.

Statement of Scope

Provides a statement outlining the limitations or scope of the report that may be imposed by the authority requesting the report or by the person preparing it.

This statement can be related to cost, time, depth of study, methodology, equipment, and any factors to be specifically included or omitted.

A separate statement of scope is sometimes included with reports prepared by consultants for a fee. The scope of the report may also be given in the letter of transmittal, introduction and the Executive Summary of the report. A separate statement of scope should not be included unless there is a specific need for it.

Introduction

Introduces the subject of the report, as the reader may be from a different branch of the discipline and may require some orientation to the subject of the report, providing the reader with all the background necessary to properly read the report.

Guidelines:

- The introduction should include general background information that describes the company, department or agency, introduces the subject, describes the circumstances leading up to the decision to prepare a report on this subject, what work has been done on the subject previously and by whom, and why the study or project is necessary.
- A statement of purpose that defines what the study or project (or report) is to achieve, and who authorized it and the specific terms of reference should be included in the introduction.
- The introduction should also include a statement of scope that outlines any limitations imposed on the project and states who imposed them. Factors such as cost, time, depth and extent of study methods, equipment, factors to be included or omitted, should be noted here.
- Page numbering should be re-started with the introduction section as page 1.

Main Sections and Subsections

Presents the evidence (facts, arguments, details, data, test results, etc.) necessary for the purpose of the report. There are no absolute rules regarding the content of these sections and there is no prescribed organizational structure to follow. Its content and structure are dependent on the scope of the report and the writer's choice in how logically to present the material.

Guidelines:

- Appropriate descriptive titles should be used for each main section/subsection.
- Information should be presented using a logical and purposeful section and subsection structure to ensure that main points are emphasized and the reader can follow the flow of information.
- The order of the information within each section and subsection will determine how easily the reader will follow the text.
- An author must decide what the reader is most interested in knowing, what else the reader needs to know, and must answer any questions that arise.
- The discussion should **address the objectives of the report** and thoroughly discuss each one.
- It should **summarise the results (if any)** and **explain how the results are important**.
- The content should be designed with readability in mind. It is important to determine what content is best presented using a written paragraph, as a list, in a table, or as a figure. See also the Illustrations section below.
- Each main section should start on a new page.
- Students must bear in mind the technical knowledge of their readers (their supervisors and the ASM-CE, faculty member or PEGNL volunteer) and prepare the text accordingly. Students should use language and describe concepts in a way that allows the reader to easily follow the report.

Illustrations (include as needed)
In technical reports, illustrations are used as required throughout the report to provide vital information that may be difficult to portray using text alone (they do not form a separate section of the technical report). Illustrations do not replace written text; they supplement it. The writer must decide whether to use an illustration and, if so, what type of illustration to use and where to locate it.

They are often referred to in a report as “Tables” and “Figures”. Tables present text or numbers in the form of columns and rows. Figures are any illustration that presents data in a graphic form.

Guidelines:

- Illustrations can include drawings, figures, tables, sketches, schematics, flow charts, diagrams, graphs, and photographs.
- An illustration should be used if it will help the reader understand the material.
- Illustrations meant to assist the reader in understanding the subject belong in the text as close as possible to the point of reference. The narrative at this point must refer to the illustration.
- Each illustration should be numbered sequentially and provided with an appropriate title or caption. Titles should be kept short, and the figure explained in the text.
- The illustration should be simple, neat, clear, easy to read (large enough font size), and easily understood.
- If an illustration is relevant and helpful to the discussion can fit into the body of the report, place it in the body of the report rather than in an appendix.
- Large complex illustrations such as folded drawings or charts belong in an appendix. Down-sized versions or schematics can be placed in the text.
- Illustrations should be referenced using an in-text citation following the text in the caption of the image.
- Each illustration should be referred to in the text to provide context and a reason for inclusion.

Results

Presents the findings of the report based on the information gathered.

Guidelines:

- Should simply state the findings.
- Finding should be stated without bias or interpretation.
- Findings should be arranged in a logical sequence.

Conclusions

Provide a synthesis of the ideas discussed in the report, demonstrate the importance of the ideas discussed and propel the reader to a new or enlightened view of the subject matter. Conclusions sum up the key points of the main Sections and Subsections, the essential features of a design, or the significant outcomes of an investigation.

Guidelines:

- Everything presented in the conclusions must have been discussed in previous sections of the report.
- Be as brief as possible with main points drawn from the primary discussion.
- Be presented clearly and accurately in a neat format, for example, in point form and numbered.
- Satisfy the requirements established in the introduction (background, purpose, scope).
- Never advocate action.

Common Pitfalls:

- Conclusions and recommendations are sometimes inadvertently placed in the same section under the heading 'Conclusions and Recommendations'. This practice is not recommended because there is a danger that a conclusion may be taken for a recommendation or that a recommendation may be stated loosely or weakly.
- Similarly, conclusions and results should not be confused. Results are obtained by applying a method or approach to the problem under consideration. Conclusions are drawn from the results by applying the criteria or guidelines established in the main sections and the introduction.

For example, a study of the condition of all concrete bridges in St. John's might find that some were in poor condition with cracks, exposed reinforcement steel, spalling, etc. These are results, not conclusions. If criteria such as safety, maintenance, and life expectancy are applied, a conclusion might be that certain bridges are in poor condition and have a limited life expectancy.

Recommendations

The recommendations section presents the preferred plan of action.

Guidelines:

- An action plan is presented with several courses of action described, each with attendant advantages, disadvantages, costs, limitations, and ramifications.
- The above-noted items should have all been previously discussed and conclusions are drawn based on the criteria being applied.
- Be specific, definite and clearly stated.
- Be strong and advocate action.
- Satisfy the requirements established in the introduction.
- Follow logically from the conclusions.

- Be presented in a logical order, e.g., by importance, chronologically, functionally.

In the example of the bridge study previously presented, the student may have concluded that it will cost $1.3 million to replace a badly deteriorated bridge. To repair the same bridge to an acceptable standard will cost $300,000 now and $20,000 a year in maintenance. The bridge will have to be replaced eventually. The recommendations should state which option is preferred and, briefly, why.

List of References
Common to all communication components. Please refer to the Referencing Appendix below.

Bibliography
Provides an additional list of related material for further reading, if applicable. A bibliography may be included in a formal report if it is justified, but it should not be confused with the List of References.

Guidelines:
- Bibliography entries are not numbered.
- Entries appear in alphabetic order of authors' names.

Appendices
Appendices contain large, complex drawings, source documents, data, specifications, test results, cost comparisons, etc. This information provides broad base support for what is said in the discussion, but the report can be read intelligibly without it.

Guidelines:
- Appendices appear in the order in which they are first referred to in the report.
- Appendices are considered to be individual documents; each may be paginated separately, starting at 'i'.
- Each appendix is given an identifying letter, e.g., "Appendix A", "Appendix B", etc.
- All information provided in an appendix **must** be referred to in the report.

Evaluation

The Comprehensive Technical Work Term Report will be assessed according to the following:

Structure and Format
Structure
- Cover and Title Page are included
- Letter of Transmittal is included
- Table of Contents is included and appropriately formatted
- List of Figures / List of Tables is included (if sufficient number included in the report)
- List of Abbreviations is included (if the report contains sufficient number)
- If report is confidential, each page is stamped confidential

Format and Organization
- Report folder/binding is appropriate
- Appropriate font used
- Correct use of page numbering
- Length of the report is appropriate to topic and scope; not shorter than minimum requirements

- Layout is easy to read
- Section headings are used and are numbered and named appropriately
- Main sections and sub-sections have a logical order
- Appropriate sections are included
- Sections properly formatted and contain appropriate material
- Tables and figures are properly formatted
- Tables and figures are properly cross-referenced in the text

Technical Quality

- Topic is suitable
- Introduction is thorough (general background, purpose, and scope included)
- Main sections cover the scope of report appropriately/thoroughly
  - sufficient technical discussion/content,
  - information and analysis is accurate,
  - content is consistent with stated purpose of the report,
  - tables and figures accurate and complete,
  - content of tables and figures is explained to the reader,
  - thorough/depth of treatment is appropriate,
  - original
- Conclusions are drawn from the main discussion points
- Recommendations are based on conclusions; do not contain material that was not previously discussed
- Appendix/ices are included (if required by the content/topic) and introduced in the main sections and subsections

Executive Summary

- Written as a stand-alone piece
- Neither too long or too short
- Key material is included
- No material is introduced that is not discussed in the report
- Includes conclusions and recommendations
- No acronyms are included

Referencing and Resources

- Consistent referencing style is used throughout (e.g., IEEE, APA)
- Number of references listed is sufficient
- Material is consistently/properly referenced
- In-text citations are included where required
- Use of direct quotes is avoided
- Variety of reference material is used
- Reference material is taken from a valid source; has authority

Communication Effectiveness

- Use of I, we, you, etc. is avoided
- Use of contractions is avoided
- Vague language is avoided; material is qualified and quantified

- Ambiguous pronouns are avoided
- Unnecessary wordiness and redundancy is avoided; writing is concise
- Figures of speech are avoided
- Run-on sentences are avoided
- Definitive language is supported with evidence
- Word choices are appropriate
- Formal writing style is used
- Acronyms are correctly defined
- Punctuation is correct
- Spelling is correct
- Grammar is correct
- Parallel construction is used in sentences and lists
- Sentence structure is correct
- Paragraph structure is appropriate (one main concept with supporting details)
- Writing is clear
- Content is written for the appropriate audience
- Tables and figures included where appropriate to support descriptions

APPENDIX C REFERENCING

Introduction

Referencing is the act of acknowledging the sources of material and information used in a document. Not properly including these acknowledgements may be considered plagiarism. Citations and a corresponding reference list are how referencing is achieved. The citation is included in the body of the writing to indicate the exact material that originates from another source, the List of References includes the details on where that source can be found.

Citations and a List of References are used together to provide the appropriate information to indicate what material is from another source, and the details to document the original source. They are required for all sources of information included in the report – print, online, and word of mouth (personal communication). When using material found online, students should be careful to rely only on valid, trustworthy sites. Wikipedia, for instance, can be changed by any user and is therefore not a valid site for obtaining technical information.

There are four main reasons why writers need to reference material within their reports, including:

1) It allows proper credit to be given to the authors and/or source of the information cited and allows the reader to distinguish between the writer's own ideas and the referenced information.
2) It demonstrates that the writer has researched the claims and ideas put forth and supports these ideas with evidence and information from other sources.
3) It allows the writer to share their information sources with readers so that they can find that same resource material, if needed.
4) To avoid concerns around plagiarism, and the possible negative consequences.

General Guidelines

Please follow the guidelines listed below:

- The List of References should only contain entries for works cited directly within the report. That is, each reference in the list must have at least one in-text citation.
- Information from the sources should not be "cut and pasted" but instead paraphrased or summarized to offer support for the writer's own ideas.
- Even when a citation is included, copying material directly from the source without changing the wording is considered plagiarism if the material is not in quotation marks.
- Technical reports will rarely, if ever, include information enclosed in direct quotes. Direct quotes are only used when the information cannot be paraphrased (re-written in a student's own words) without altering the meaning.
    - To decide if a direct quote should be used, writers need to ask themselves the following question, "Can I re-write this in another way and still maintain the original message or meaning?"
    - If the answer to this question is yes, don't quote – paraphrase.
- All diagrams or images that are not the personal creation or capture of the author must be correctly cited.
- The List of References is only for works cited directly within the report.
- A Bibliography is a list of documents that have been read, but not directly or indirectly quoted.
- A Bibliography should only be included as needed, and in addition to the List of References.
- Work reports rarely have, or need a Bibliography, they almost always have a List of References.

Personal Communication

Information obtained from conversations or interviews must be cited in the report but these sources do not appear in the reference list. This can be done in one of two ways, as follows:

- Introduce the paraphrased information similar to this: "In an interview with John Smith on August 22/18, he suggested …" OR
- Add the following citation at the end of the paraphrased information: "….. (Personal communication, John Smith August 22/18)".

Additional guidelines on referencing can be obtained from the library or online at:
https://www.mun.ca/engineering/undergraduate/technical-communications/avoiding-plagiarism/
https://www.mun.ca/engineering/undergrad/technical_communications/CitingAndReferencing.php

Referencing Using IEEE

While students may choose any referencing style, however for consistency and versatility, the ECEO strongly recommends the IEEE style. For IEEE the List of References is listed in the order the material is first presented in the report.

An example of the IEEE format from the style guide https://ieeeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf is shown below.

Book

[#] Author, Title, volume, edition. City, State, Country: Publisher, year.
Example:
[1] D. A. Taylor, Introduction to Marine Engineering, 2nd ed. Oxford, UK: Butterworth Heinemann, 1996.

Internet:

[#] Author. "Name of Page." Website. URL (accessed month day, year).
Example:
[1] Newfoundland and Labrador Department of Industry, Energy and Technology. Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)."
https://www.gov.nl.ca/iet/energy/petroleum/offshore/cnlopb/ (accessed July 23, 2021).

E-mail

[#] J.K Author, private communications, Abbrev. Month, year.
Example:
[3] J. Aston, private communication, Apr 2020.

Printed Internal Documents

[#] Name of Manual/Handbook, x ed., Abbrev. Name of Co., City of Co., Abbrev. State, Country, year, pp. xxx-xxx, unpublished.
Example:
[4] Motorola Semiconductor Data Manual, Motorola Semiconductor Products Inc., Phoenix, AZ, USA, 1989, unpublished.

Webpages or Files on an Intranet

[#] J. K. Author (or Abbrev. Name of Co., City of Co. Abbrev. State, Country). Name of Manual/Handbook, x ed. (year). Accessed: Date. [Intranet].
Example:
[5] Antcom, Torrance, CA, USA. Antenna Products. (2011). Accessed: Feb. 12, 2014. [Intranet].

Non-recoverable, unpublished sources typically do not require a reference or citation; however, since many work term reports are so reliant on internal workplace information, work term reports should formally reference such information to promote familiarity with referencing. This is explained in greater detail on the Engineering Technical Communications page as listed above.