



Winter 2025
COURSE OUTLINE – ENGI 001W

This Outline provides information on the requirements, expectations, and evaluations for Work Term 1. 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 <https://www.mn.ca/coop/programs/engineering/work-term-dates-and-forms/>.

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CRITICAL DATES (for all work terms*):

Thursday, 2 Jan 2025	Work Term Begins. Complete <i>Work Term Confirmation</i> online in MyMUNLife.
Friday, 24 Jan 2025	Deadline for submission of Work Term Objectives Form Submit via e-mail: coopeng@mun.ca
Friday, 21 Feb 2025	Deadline for submission of <i>Work Report/Presentation Outline</i> . Complete online in MyMUNLife.
Friday, 25 Apr 2025	Work Term ends and deadline for submission of the <i>End of Work Term Feedback Form</i> and communication component documents. Note: if mailing the forms/report, the postmark date will be recorded as the received date.
Monday, 5 May 2025	Academic courses begin for Spring Semester
May 6, 7 & 8 2025	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 their use would be considered Academic Misconduct.

COURSE DESCRIPTION: ENGINEERING 001W

Engineering Work Term 1 provides opportunity for an introductory experience in an engineering work environment. Students are expected to learn, develop and practise the basic standards of behaviour, discipline and performance normally found in a professional work environment. They are expected to learn the basics of technical writing and to become familiar with the various communications tools used in an engineering work environment.

001W 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 1 are listed below:

1. **Initiative:** Under supervision, voluntarily take action to complete assigned tasks
 2. **Organization and Planning:** Prioritize work assignments with supervision, and plan and use time productively to complete work
 3. **Quality of Work:** With supervision, produce good quality work with minimal errors
 4. **Productivity:** With supervisor guidance, learn new material to complete an assigned amount of work within set time limits
 5. **Written Communication:** Communicate technical information in writing in an organized way, with some review and editing required
 6. **Verbal Communication:** Verbally express ideas and technical information clearly, with minimal clarification required
 7. **Work Independently:** Work independently on routine tasks, taking direction and seeking assistance for clarification and understanding in order to properly complete tasks
 8. **Teamwork:** Work cooperatively with others in completing tasks, supporting team success
 9. **Problem Solving:** Using standard step-by-step methods, apply problem solving skills to assigned work
 10. **Project Management Techniques:** Develop awareness of project management techniques
 11. **Safety and Environment:** Be aware of safety procedures and demonstrate safe work practices
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12. **Ethics and Integrity:** Demonstrate awareness of ethical issues, and display honesty and fairness in interactions with others
13. **Appreciation of Diversity:** Recognize diversity and inclusion in the workplace; showing respectful behaviour towards others
14. **Adaptation to Organization's Rules and Policies:** With guidance, recognize, understand, and follow an organization's rules and policies
15. **Response to Supervision:** Openly accept direction and feedback and respond positively
16. **Dependability:** Be reliable and consistent in completing work and meeting commitments, while demonstrating a good work ethic

WORK TERM DELIVERABLES

Students must submit on the date indicated above the following for Work Term 1

Work Term Confirmation
Work Term Objectives
Work Report Outline
Work Term Diary (see appropriate appendix)
Short Descriptive 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](#) form to the ECEO (coopeng@mun.ca) for review and keep a copy 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 Term One 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
- a writing sample - in the form of the Introduction section of the report

Students must discuss their proposed work term report topic with their supervisor early in the term and determine if any of the written material in the Work Report Outline may be confidential. If so, the Introduction shall be written in such a way that it is not deemed “confidential” and is able to be submitted to the ECEO. The assigned ASM-CE will provide formative feedback to the student after review of the Work Report Outline.

SHORT DESCRIPTIVE TECHNICAL REPORT

The Work Term 1 Short Descriptive Technical Report and its evaluation criteria are described in the appropriate appendix below.

Your ASM-CE will communicate the format of your report submission which may be either a properly bound paper copy or an electronic submission. If an electronic submission is requested, it 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 if submitted in paper format, or 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/writingcentre/understanding-plagiarism/>

APPENDIX B DIARY

One of the communications components for Work Term 1 is the Work Term Diary. Other deliverables are listed in the ‘Work Term Deliverables’ section in the main part of this document. Students are required to show their Work Term Diary to their assigned ASM-CE during the monitoring meeting, and it must be submitted for evaluation at the end of the work term. Your ASM-CE will communicate the format of the end of term Diary Submission which may be via delivery of the physical Diary to the ECEO or as a digital copy of the physical diary.

Personal Work Term Diary

The legal community urges all professionals to record daily events as they pertain to employment. A daily diary is an important document for an engineer to maintain. If properly maintained, an engineer’s work diary can be used to determine the time and substance of work-related activities and events. It may be used to reconstruct events that occurred in the past if the need arises. Therefore, it must be accurate.

The Work Term Diary serves a similar role for the student during engineering work terms. Its content is often referred to later by the student and sometimes by the employer. Students should consider what information will be useful to them – students working for consulting firms should use the diary to record hours on projects, some students use their diaries for making to-do lists or for recording appointments. Names and contact information of people met or spoken to in the course of the student’s work should be recorded – these contacts could be useful in future job searches. Students working on long projects or doing repetitive work should find some way to monitor and report progress each day, such as recording what specifically is different about any of the repetitive work being performed on a particular day. Students may perceive that events related to their own jobs are not important enough to record. Nonetheless, this is the area in which they must focus. They should remember that they are learning to keep a work diary properly.

Confidentiality

Depending on an employer’s confidentiality protocols, some supervisors may be required to conduct a review of any material to be submitted to the ECEO at the end of the work term. At the beginning of the work term, students should confirm with their work term supervisor whether the Work Term Diary may need to be reviewed for confidentiality purposes prior to submission. The content of the Work Term Diary must be such that it can be submitted and evaluated by the ECEO (i.e., removed from the workplace for marking).

General Work Term Diary Guidelines

In order for the work term diary to be accepted as an authentic record, the following guidelines should be observed:

- A date-stamped or numbered, hardcover bound notebook, **not a loose-leaf binder or a spiral bound book** should be used to record entries. A laboratory book or similar is preferred. This removes the possibility of losing or replacing sheets, either of which causes doubt about the diary’s authenticity.
- Students should choose a book of suitable size that will cover the work term time and provide adequate space for detailed entries.

- Entries should be recorded daily, and must be recorded on the job. If job diary entries are made afterwards based on notes or recollection, the diary loses much of its strength as an authentic record. This requirement applies whether the work takes place in the field or office.
- Cramming entries into confined spaces such as a full or part page can lead to the loss of important details and an overcrowded appearance. Use as many pages as required.
- Leaving blank lines between entries may make the diary neater in appearance, and easier to read.
- Students should start each day's entry on a new page, take as much space as is needed, and write or print legibly.
- Point form is acceptable, but the meaning must be clear.
- Pages should be numbered in sequence; this helps establish authenticity.
- Entries shall be made in blue or black pen (never in pencil). If an error is made in recording an entry in the job diary, the entry should be corrected by drawing a line through the part in error and writing the correct version immediately above it.
- Erasing, using white-out, or removing parts of the diary is not permitted because it raises doubts about the authenticity of the content.
- Entries should be neatly handwritten or printed; not typed, nor maintained electronically.
- The diary should not be used as a lab book to record data from experiments, tests, etc. or other details that need to remain with the employer after the student leaves. These types of information should be recorded in a separate book.
- At the time of recording it is not known which items may turn out to be important. Therefore, straightforward, factual entries are preferred to opinion, interpretation or hearsay.
- At the end of each day's entry, the student should sign their name or initial immediately below or should put a line through the rest of the page. This prevents adding material later and removes doubt concerning authenticity.
- Should a student miss a day for any reason, they should not go back and write an entry, nor should they leave a page blank so they can go back. At the beginning of the next entry, there should be a short explanation for the missing entry, before proceeding with recording the new day's events.
- Entries should be related to the student's work, or events taking place during work hours (not events that occur outside of work on a student's personal time).
- Events should be recorded as they happen, including:
 - meetings attended, whether formal or informal, and a short description of what was discussed,
 - observations made during the day on matters connected with the job, staff or clients,
 - notes on items to follow up on at a later date,
 - phone calls made that had a direct bearing on the job,
 - hours of work and overtime,
 - project milestones met,
 - problems encountered and how they were resolved,
 - routine details, instructions, decisions, reminders and conditions,
 - drawn illustrations or freehand sketches included where appropriate, and
 - any other items that may prove useful at a later date.

Examples of Work Term Diary Entries

The following several pages include sample diary entries from two students at various points in their work terms. These are only samples of good practices, not exact ways to complete a diary.

RECEIVED
AUG 21 2015

May 20th, 2015

8:30-9:00
Site visit with Trevor Peaddle to observe placement of catch-basin #11. ENGINEERING CO-OP

9:00-9:15
Visit other sites around town with Trevor.

9:15-9:30
Review plans of Duggan Street with Trevor.

9:30-10:00
Site visit to Duggan Street with Trevor to observe work.

10:00-10:30
Check in at Town Hall with Trevor.

10:30-11:00
Learn about surveying from Chris Eeener (Penny Paving), who used a total station for the lane addition to access highway off of Duggan Street.

11:00-12:00
Observe work on Duggan Street with Trevor. 14 inches needed to be cut off catch-basin #13 before it could be lowered into the ground.

H.C.

RECEIVED
AUG 21 2015

May 20th, 2015 Continued

12:00-1:00
Lunch Break

1:00-2:00
Return to Duggan Street with Trevor to observe work.

2:00-2:30
Return to Town Hall to speak with Nelson concerning infrastructure at Gorge Park.

2:30-3:00
Trip to Gorge Park with Trevor to inspect boardwalks/wharfs that have been eroded by water and ice over the winter.

3:00-4:00
Return to Duggan Street with Trevor to oversee work.

-Herdi Colth

RECEIVED
AUG 21 2015

ENGINEERING CO-OP

H.C.

Student 1 - Civil Student in a Municipal position, early work term

August 13th, 2015

8:00-8:15
Meet at Town Hall with Roger, Jamera and Derrick. Discuss information needed to be gathered from Crawley Street.

8:15-10:45
Go to Hardy Avenue with Jamera. Speak with Darren about invert elevation of Man Hole #8. Meet up with flagperson Glen. Survey Centreline on Crawley Avenue, profile the ditch and pick up the invert elevations of several pipes as well as the top of asphalt elevation for the proposed location of two new catch basins.

10:45-12:00
Return to office to complete calculations from survey work.

12:00-12:30
Lunch Break

12:30-1:45
Go to Main Street Properties with Jamera and complete cross sections.

H.C.

August 13th, 2015 Continued

1:45-2:20
Go to #307 Grenfell Heights with Jamera to investigate pond which may be causing excess water to enter the sanitary sewer system.

2:20-2:45
Go to Hardy Avenue with Jamera to re-check elevation 20m up Crawley Avenue and determine size of CMP.

2:45-3:45
Return to #307 Grenfell heights to take survey shots on clean outs, the water level of the pond, the catch basin as well as other miscellaneous information. Speak with the home owner about weeping tile which connects to sanitary sewer system.

3:45-6:00
Go to Arterial Road with Jamera to do cross sections from station 1+460 to 1+900. (1.5 hours overtime)

-Herdi Colth

H.C.

Student 1 - Civil Student in a Municipal position, late work term

- Events are recorded accurately
- Contact names, meeting notes, observations, follow-up notes, reminders, important communications, hours of work, illustrations, etc. are included if appropriate
- Entries are factual, versus opinion or interpretation
- Diary is not used to record experiment or test data
- New entries begin on a new page
- Each page is dated
- Each page is numbered
- No days are missing days
- Frequency of entries is appropriate
- Entries are made consistently
- Sufficient detail is recorded in entries
- Each page is initialed
- Large blank spaces are crossed out

Communication Effectiveness

- Entries are clear and understandable
- Vague language is avoided; material is qualified and quantified
- Ambiguous pronouns are avoided
- Unnecessary wordiness and redundancy is avoided
- Figures of speech are avoided
- Entries are paraphrased
- Word choices are appropriate to describe work
- Acronyms are correctly defined

APPENDIX C SHORT DESCRIPTIVE TECHNICAL REPORT

Introduction

The technical report is an important document for engineers. Engineers will be 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.

For the Work Term 1 communications component, students are required to prepare a Short Descriptive Technical Report. The report is typically based on one of the main projects that the student works on over the term. This section describes the general format for a Short Descriptive Technical Report. The format provides a helpful template for writing a Short Descriptive Technical Report, but clear thinking and careful planning are also required. Ideas need to be organized and expressed in a precise and concise manner.

For useful resources to assist with the completion of this Communications Component deliverable, see the Brightspace shell here: [Work Term Communications Components – Online Support Materials](#)

Types of Technical Reports

Engineers are often required to prepare technical reports. These may take the form of proposals, project progress reports, trip reports, project completion reports, investigation reports, or feasibility studies. Each of these reports have different content and objectives; however, one common goal of all technical reports is to communicate technical information effectively to a reader.

The Work Term 1 Short Descriptive Technical Report usually describes some process, subject or project relevant to the student's workplace. Sometimes descriptive reports are used for training purposes or to provide information on some aspect of the job in which the student is working. Students who work on the same project for a significant portion of their term are encouraged to select this project as the focus of their Short Descriptive Technical Report. Other significant projects may also be considered. The report should demonstrate organization and communication skills and should have a good summary.

Note that a Work Term 1 student may be permitted by their ASM-CE to submit a more analytical type of short technical report such as a feasibility study, investigation, or design if this type of report is more relevant to the work conducted on the work term. A user's manual for equipment the student built or used or software they worked with may also be acceptable documentation. Some employers require their students to prepare internal reports for their files or draft reports for the client; these are generally acceptable as work term reports.

Topic

Students should discuss their topic with their employer 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 of exploring 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.

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.

General Report Guidelines

Please follow the guidelines listed below:

- Work Term 1 report should be a **minimum of 2200 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.
- Print the report single sided.
- 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.
- Print double spaced, and leave a 1.5” margin on the left for binding, and 1” margin on the other three 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 printed 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.
- Bind the report using a suitable method that protects the cover page and a back cover. This does not include a three-ring binder, duo-tang, or stapling.
- 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 optional based on the report; other sections are required for most technical reports.

% Recommendations are not expected for the Work Term 1 Short Descriptive Technical Report. If a student, in consultation with their assigned ASM-CE, decides to write a more analytical type of short technical report, this section may be required, depending on the topic and nature of the report.

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. Note that Conclusions and Recommendations should remain as separate sections.

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 into the report after the 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 shown on the next page.

Company letterhead (if permitted)

Your address at work

Date of submittal

(Name of Student's ASM-CE this work term)

Co-operative Education Office
Faculty of Engineering and Applied Science
Memorial University of Newfoundland
St. John's, NL
A1B 3X5

Dear (ASM-CE's full name):

During this work term (Engineering xxxW), I was employed with _____ as a construction inspector with the Works Department. This was my second work term with the town and this time I was supervised by _____ P.Eng., the town's construction engineer.

The Works Department was required to manage an extensive range of projects because the town currently has a higher capital budget than normal. I gained exposure to many of these projects, and when the chief surveyor was on annual leave, I supervised the survey crew.

The enclosed work report titled italicize title or put in quotes resulted from a request by _____, the town's environmental officer concerning PCBs which were produced by the town's own operation over the years. I was required to become familiar with the relevant provincial regulations and I designed a small enclosure for the municipal depot which is estimated to cost \$17,800.

If there are any questions concerning this report, I would be pleased to discuss them with you.

Yours truly,

Signature (by hand or electronically)

Your Name

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 four essential elements listed above 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, normally numbered 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, why the study or project is necessary, and any important limitations of the report.
- 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 cover 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 incorrectly 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.

Note that students completing a WTI Short Descriptive Technical Report are not expected to write recommendations for their reports. More analytical types of technical reports may require the inclusion of inclusion of formal conclusions and recommendations, depending on the topic and nature of the report. If writing a more analytical type of report, please see the Recommendations guidelines below.

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. Most work term reports do not require a Bibliography.

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 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 Short Descriptive Technical Report will be evaluated in conjunction with the Work Term Diary to assign an overall evaluation for the combined work term communications components.

The Short Descriptive Technical 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 (if included) 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,
 - original
- Conclusions are drawn from the main discussion points

- Recommendations are included if required by the content/topic, and 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 sub-sections

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 (as appropriate)
- 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 are 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 D 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 is 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.
- 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)”.
- 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.
- General information that can be considered public knowledge in the field need not be referenced.
- The requirement for precise referencing is greater for academic and scientific reports than for business and other technical reports; however, all reports must be referenced to the level that an interested reader can identify the sources and obtain them if desired.

Additional guidelines on referencing can be obtained from the library or online at:

<https://www.mun.ca/writingcentre/understanding-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://ieeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf> is shown below.

Book

[#] Author(s). Book title. Location: Publishing company, year, pp.

Example:

[1] W.K. Chen. Linear Networks and Systems. Belmont, CA: Wadsworth, 1993, pp. 123-35.

World Wide Web

[#] Author(s)*. “Title.” Internet: complete URL, date updated* [date accessed].

Example

[2] M. Duncan. “Engineering Concepts on Ice.” Internet: www.iceengg.edu/staff.html, Oct. 25, 2000 [Nov. 29, 2003].

E-mail

[#] Author. Subject line of posting. Personal E-mail (date).

Example:

[3] J. Aston. “RE: new location, okay?” Personal e-mail (3 Jul, 2003).

Non-published sources such internal or unpublished documents

J. K. Author, “Title of report/paper,” unpublished.

Examples:

[4] B. Smith, “An approach to graphs of linear forms,” unpublished

Other non-recoverable unpublished sources such as interviews or phone calls do not require a reference, or citation; however the author or source must still be acknowledged in the text. This is explained in greater detail on the Engineering Technical Communications page as listed above.