Dear Student:

In approximately four months, you will begin your first work term in the Engineering Co-operative Program at Memorial. As a graduate of our co-op program I know very well the tremendous benefit that you will derive from your work experiences. This handbook serves to help you maximize your learning from these experiences. While much of the handbook deals with preparing you for your first work term, its purpose is to provide answers and support for your entire program.

The co-op handbook is used in conjunction with the PD seminars that take place during the academic terms. You are required to attend these seminars and to complete any assignments that will be given. As a result of these seminars, our students are more knowledgeable and improve their chances of securing work term placements.

To enhance your chances of successfully completing the co-op program and obtaining valuable work experience, you must:

1. Consider your long-term goals and apply to jobs for suitable experience rather than monetary, location or other reasons.
2. Attend all interviews you have been offered; interviews offer valuable experience and skill development.
3. Make contact with and follow up on employers on your own; use all of your resources.
4. Use professional judgement in your dealings with the co-op office, faculty and employers.
5. Discuss all work term issues with a coordinator.

Securing a work term position is a joint partnership between you and the co-op office. The co-op office solicits employers and develops many positions. There is no guarantee, however, that you will be offered a work term position through the job competition. Since the co-op work term is an integral part of your undergraduate engineering education at Memorial, missing an important component of that education through missed work terms can delay your graduation from our programs. While some students experience problems in securing a work term, the record of student initiative with respect to items 1-5 above is considered when reviewing an application for a work term exemption. The Faculty needs to be satisfied that a student who is granted an exemption has pursued every opportunity to find a work term.
While you are on a work term you are a full time student at Memorial and you are considered an ambassador of the co-op program. Your interaction with employers, the university, co-workers and the wider community will determine the success of the program. Please refer to the regulations in the University Calendar as well as this handbook on specific issues. We trust that through the work terms your introduction to the practice of engineering will be rewarding.

If I can be of any assistance to you at any point in your undergraduate program, please feel free to contact me.

Yours truly,

Ray Gosine, Ph.D., P.Eng.
Dean
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1 CO-OPERATIVE EDUCATION

1.1 Purpose of Co-operative Education

The skilled professional engineer has always been recognized as that person who can combine a sound theoretical knowledge of the principles of engineering with the practical skills of applying those principles to the task at hand. The co-operative program in engineering at Memorial allows the undergraduate to develop knowledge and practical skills by providing a completely integrated pattern of academic study and industrial experience in various phases of engineering, with graduation requiring satisfactory performance in both areas.

The degree program covers almost five calendar years, comprising eight academic and six work terms. The work terms bring the student into direct contact with industry and the engineering profession, and provide practical exposure to problems typical of those encountered in practice. Through personal experience in industry, the student's educational environment is extended and the total education advance. The maturing prospective engineer, provided with an opportunity for self-discipline and direction, gains an early appreciation of the social and personal aspects of engineering.

1.2 Partners in the Co-operative Program

The co-operative program has three partners - the employer, the student and the university. All three co-operate towards a common education goal and all three benefit from the program.

Employer Benefits

One of the most important benefits to the employer is the opportunity to see students in the working environment for several terms during their careers. This clearly makes for more reliable graduate recruiting, since both employer and student make their choices based on working experience. The employer benefits in other ways:

- Co-op students can relieve and assist other employees in many duties.
- Because students are available on a year-round basis, assistance is not restricted to the summer months.
- Because students may be employed at other times of the year, many 'summer' duties can be rescheduled to take advantage of the available talent.
Often, the technical expertise of work term students is of a high order, for two reasons:

First, since the work term is an integral part of the degree program, the level of commitment on the part of the student to perform effectively is high, and second, students in co-op programs tend to develop a high level of personal and professional skills early in their careers.

**Student benefits**

One of the most important benefits to students is the opportunity to better evaluate their career choices. Career choice and the choice of final discipline are often based on industrial exposure during the early years of the program.

Students also have the opportunity to gain experience in a variety of industries and types of engineering work as well as to evaluate specific companies. This makes for a mature graduate who is more informed and therefore able to make better choices on graduation.

**University benefits**

The university benefits in a tangible way by providing faculty with a pipeline into the industrial world which enables them to evaluate the effectiveness of their course material and to help keep up with current practices.

The university and faculties can maintain contact with industry through the Office of Co-operative Education in each faculty. University facilities, laboratories and equipment are used year-round, resulting in more economical operating cost per student.
THE OFFICE OF CO-OPERATIVE EDUCATION

The Office of Co-operative Education, reporting to the dean, Engineering and Applied Science, is responsible for the management of the work term aspect of the engineering program. These responsibilities include:

- promoting the co-op program to prospective employers.
- providing career related job opportunities to students.
- providing seminars and lectures on work term requirements.
- monitoring students during the work term.
- giving professional feedback and guidance to students.
- providing professional advice on employment trends to faculty.
- evaluation and making recommendations to faculty council on the promotion of each student to the next academic term.

The office has six co-ordinators. Five are professional engineers, covering a variety of engineering disciplines; one is a mechanical engineer with an MBA. The co-ordinators are integrated within the Engineering Faculty and serve on faculty council, undergraduate studies, continuing engineering education, admissions, promotions and appeals committees.

The co-ordinators are also members of the Canadian Association for Co-operative Education (CAFCE), a national organization established to promote high standards of co-op in Canada. The co-ordinators are involved with the regulatory body of CAFCE, the Co-operative Council of Canada (COCOC), which has developed and maintains the rigorous set of criteria all co-op institutions must follow if they are to be accredited.

The office also has a senior secretary who is the office manager, co-ordinates the job competition and provides support services. A receptionist is also available to answer any questions and direct you to the appropriate staff member.

The Co-operative Education Services Centre, located in UC4000, provides support to the Co-operative Education Office in all faculties.
MARKETING, JOB DEVELOPMENT, JOB SEARCH AND JOB COMPETITION

3.1 Marketing, Job Development and Job Search

All the co-ordinators are actively involved in marketing the engineering co-op program and the continuing development of new job opportunities. All co-ordinators, when doing on-site monitoring, maintain and service long-standing employer-clients and, through referrals and networking, regularly add new and potential employers to the existing list.

In the professional development seminars, offered in Academic Term II, emphasis is placed on helping you to learn dynamic job search skills that will make you nationally and internationally competitive. Professionals from the engineering community are invited as guest speakers.

You are encouraged to seek your own job from the start of Academic Term II; do not wait until the job competition. In times of cutbacks and high youth unemployment, full placement can only occur if you are pro-active in the job search. Students who take an active job-search role are developing employment skills.

Co-ordinators are available to help you identify your individual and unique contacts, write effective résumés and cover letters, and develop techniques for increasing your likelihood of being interviewed.

3.2 Jobs Advertised Outside Co-op Office

Many jobs are advertised outside the Co-op Office that may be appropriate for a work term. Some areas to check are listed below.

3.2.1 Federal Government Summer Employment Program

In the spring semester, the federal government offers positions under the Federal Student Work Experience Program (FSWEP) program. Many of these, although paid out of a non-co-op budget, are considered appropriate as co-op positions.

FSWEP gives full-time secondary school, CEGEP, college, technical institute and university students:

- fair and equal access to student jobs offered by the Public Service of Canada (PSC).
- opportunities to learn about federal government and gain valuable experience while developing and improving their employability skills.

The core of the FSWEP program is a computerized national inventory of students seeking jobs with the federal government. The inventory is administered by the PSC of Canada. The process is:

- The hiring department submits a request to the PSC.
- A search of the inventory is conducted.
- Students are selected at random by the computerized system.
- The PSC contacts the selected candidates by phone to check their interest and availability.
- The PSC usually refers five names for each job opportunity.
- The hiring department contacts the referred candidate for interviews.
On average approximately 10,000 jobs are available and 90,000 applicants are received annually from students across Canada.

Copies of the Application Form and Student’s Guide are available at the Co-op Office or you can apply via the PSC Web site at [www.psc-cfp.gc.ca/index_e.htm](http://www.psc-cfp.gc.ca/index_e.htm)

3.2.2 Centre for Career Development on Campus

Jobs may be posted at the Centre for Career Development on Campus and not be forwarded to our office (e.g., certain jobs in Physics, Mathematics, Computer Science, etc., could be considered appropriate by the Co-op Office, but not forwarded to us). Note such jobs when visiting the centre, and apply for any that you consider suitable. A co-ordinator must approve before you can accept the position. Check also the HRDC web site at [www.jobbank.gc.ca](http://www.jobbank.gc.ca) for jobs posted there.

3.2.3 Student Employment Centres

Summer funding has traditionally been available thorough the federal government under their Challenge summer employment program. Public, private and not-for-profit employers are eligible to apply for this funding. Make employers aware of this funding when you do your job search. Application for such funding is generally required by March of that year and employers have to apply directly to Human Resources Development Canada (HRDC). Visit the Student Employment Centres (operated by HRDC) each summer in key centres around the province; many summer jobs placed through these centres may be suitable work term positions.

3.3 Job Competition

3.3.1 Recruiting Ethics

Developed by the Canadian Association for Co-operative Education (CAFCE) for the employers, the students and the university, these ethics ensure that all three parties will be treated in a professional manner. Be aware of these guidelines and report violations to the Co-op Office.

Employer Ethics

Employers should:

1) respect school deadlines regarding job postings, interview space reservations and interview times.
2) provide schools with up-to-date corporate literature and-or provide information that reflects as accurately as possible the job(s) to be filled.
3) give reasonable notice (minimum three days) of those candidates to be interviewed or of interview cancellations.
4) abide by the co-op recruiting rules of each institution.
5) not discuss job offers/rankings with candidates before, during or after an interview.
6) not pressure candidates to give company preference in the ranking process.
7) not provide candidates with information on other companies.
8) not seek a candidate's assessment of another candidate.
9) not mislead students about their ranking intentions.
10) be prepared to provide schools with accurate information regarding salary and relocation expenses (if applicable).
11) provide schools with ranking results (where applicable) within three days following interviews (provided that this meets with the deadlines of a given institution).
12) not submit/make multiple job rankings, offers unless prepared for multiple acceptances.
13) honour all job/student matches. It is the employers' responsibility to not renege on accepted offers or to rescind offers of employment.
14) confirm all job offers in writing.
15) not translate a co-op assignment into a full-time position as a way of persuading a student to settle for a lesser degree.
16) not expect co-op schools to recruit students on their behalf.
17) report violations of recruiting ethics to the Co-op Office at the university or college at which the violations occur, or to the CAFCE national office.
18) comply with all provincial and federal human rights and employment legislation.

**Student Ethics**

It is the student's responsibility to:

1) abide by the co-op rules of your institution.
2) provide employers with **accurate** and appropriate information on your qualifications and interests. You should ensure that employers are provided with all requested information, i.e., résumé, transcripts, etc.
3) apply for jobs in which you have a genuine interest.
4) notify the Co-op Office well in advance if interviews must be rescheduled or cancelled.
5) be well prepared for interviews.
6) not discuss job offers/rankings with an employer during or following an interview.
7) not provide employers with information on other students or other employers.
8) honour the acceptance of placement as a contractual agreement with the employer.
9) honour the relocation policy of employers with whom you are placed (if applicable).
10) respect the policies of employers regarding confidential/proprietary information and the application of these policies to student work reports.
11) report violations of recruiting ethics to the Co-op Office at the university or college you attend.

NOTE: Students who do not follow the recruiting guidelines may be prohibited from the job competition.
University Ethics

It is the educational institution's responsibility to:

1) inform students and employers about its recruitment and placement policies and procedures.
2) provide equal services to all students and employers.
3) accommodate employers' reasonable request of job posting, interview space and presentation facilities.
4) provide students with accurate information on all employers who are recruiting. All information and promotion materials (including salary information) must be approved by individual employers before posting.
5) follow ethical and legal guidelines in providing student information to employers.
6) notify employers of any imposed quotas or hiring limitations placed on an employer before that employer conducts interviews.
7) notify employers of any students who, after being hired, do not achieve an academic level high enough to allow them to continue in the co-op program.
8) notify the CAFCE national office of any employer recruiting violations.
9) comply with all provincial and federal human rights and Employment legislation.

3.3.2 Mechanics of the Job Competition
(Please note: This is subject to change. Check co-op office for addition information. Also refer to the Placepro Manual for submission of resumes, job bids, etc.)

The job competition for the subsequent work term starts very early in the academic term and you should be aware of the upcoming events. Check the bulletin board outside the Office of Co-operative Education (Room EN4021) on a regular basis for notices, or ask the receptionist.

In Round #1 (Job Competition) all jobs received to date will be posted.

During Round 1, there may be three or four postings of jobs; these will take place on a weekly basis (usually Thursdays at 1 p.m.) and will depend on the number of jobs submitted. Check the bulletin board for the posting dates for each semester. Jobs are also posted electronically at our Web site: www.coop.mun.ca.

Apply only for jobs in which you have an interest.

3.3.3 Deadlines

To ensure that the job competition runs smoothly, all job postings will have a deadline for applications. These deadlines are rigid, and you should be aware of that. Late applications will not be accepted. Make sure you have résumés and transcripts available well in advance of the start of the competition.

At the end of the first posting, you should submit all job applications, résumés and transcripts for each job, as well as a copy of the "Student Summary of Jobs" form and an extra copy of your resume and transcript. Complete this form listing all jobs applied for, employers' names, etc. Any jobs you apply for in later postings will be entered on this form by the office staff.
3.4 The Placement Process

The Co-op Office will forward all résumés, transcripts and job applications (application letters) to the respective employers, who will send back a list of students they wish to interview. In some instances employers may interview all applicants, but in most cases they will screen applicants and interview only a manageable number.

Interviews for Round #1 will take place on campus during a two - three week period in the middle of the term.

When interviews have been completed, employers are asked to submit their rankings as well as feedback on how well students performed. This feedback is used to counsel students in areas where weaknesses may exist. If you are concerned, seek the advice of a co-ordinator on matters related to your interview.

The first step in the matching process is to post a list of students who have offers from employers. These students will be advised to pick up their offers from the office. Also posted will be a deadline for acceptance or rejection of these offers. The offers must be returned to the office. Students who do not respond by this deadline will forfeit their offers to the next available student on the employer's list. When a job has been accepted, the student is committed to that job for the work term (refer to the university regulation Item 26 for work terms as listed in the Engineering Calendar, as well as the general regulations in the University Calendar section).

The students with the next highest rankings, where jobs and students are still available, will be notified in the same sequence as listed above. A student who accepts an offer in the first iteration will not be informed of any other rankings. This process will continue until either all of the jobs are filled or all eligible students are placed.

You should research the jobs prior to the interview; this research, together with information learned at the interviews, should help you make an informed acceptance or rejection decision.

Students are not to contact an employer to discuss ranking or anything else associated with the competition without consulting with a co-ordinator.

3.5 Second Round Postings

Some students will not have a job after the first round of the competition; they must assess the reasons with a co-ordinator who will offer suggestions for the next round.

The Second Round starts with an assessment of those jobs that have not been matched and those students who are still available. At this time, students are requested to make sure that a copy of their résumé and transcript are on file at the Co-op Office.
Interviews for jobs that are still available will start immediately after completion of the first round matching process. Job postings will continue, as long as employers submit jobs to the office, up until the week before final exams. Interviews will not take place during exams; however, jobs may be posted during this time period, and it is your responsibility to be aware of this. Occasionally, if requested by an employer, co-ordinators will scan student information sheets and forward résumés of students who have the interest and background for the jobs posted.

Unplaced students should check with the office on a regular basis to keep up to date on current events. Students should also check their e-mail daily.

3.6 Finding Your Own Job

You may obtain your own work term jobs outside the job competition. Many students may have summer jobs that they can return to and many of these jobs are appropriate for a work term. Such jobs must be confirmed by letter from the employer and approved by the Office of Co-operative Education on or before the first day of the work term (see the University Calendar).

The Co-op Office will do as much as possible to develop sufficient job opportunities for students; however, the university does NOT guarantee placement, and securing a work term position is ultimately the student's responsibility.

All students are strongly encouraged to contact employers on their own. This should be done in a similar manner to researching the employer, as described in Section 4.1. General letters of application will most likely be discarded. Students should:

- select companies that may offer good experience.
- be aware of funding sources available to employers. This information is available on the Internet at www.coop.mun.ca.
- get to know the company. Information is available through the Co-op Office, libraries, newspapers, and the Internet.
- write a job application as described in Section 4.3.
- identify, by phoning the company, the name of the manager, human resource director, or other appropriate person and address the letter to him/her.
- send or hand deliver the applications with a cover letter and résumé included.
- follow up in a few days with a phone call inquiring if the application was received and whether an interview can be expected.

When time does not permit this approach, another technique is to phone and attempt to speak to the individuals identified in the job search process. Should this be possible, there will only be a few minutes to get a clear message across as to the purpose of the call.

This should include:

- name, program and discipline.
- reason for interest in obtaining employment with this company.
- request for an interview and indication that a résumé will be sent.
- appreciation to the employer for reviewing the job application.

If an interview is granted and a job is offered, notify the office as soon as possible. A short job description from the employer should be submitted to the Co-op Office for approval before the job can be accepted as a co-op work term position. The job description should
In your job search, make employer aware of a funding source which is available to them. Small Enterprise Co-operative Placement Assistance Program (SECPAP) is available that will support up to $5.00 per hour of a student salary. This funding is available to Newfoundland Companies who have 50 employees or less. Usually, this funding becomes exhausted quite early. Therefore, it is necessary to make employers aware of this and develop your own job at the start of the academic term prior to going on a work term. The coop office will provide you with further information.

3.7 Entrepreneurship on Work Terms

For some students the idea of developing a business enterprise while going through university is a real goal. These students have developed the entrepreneurial desire and this desire is encouraged by the Co-op Office and recognized as an alternative to working for an established company during a work term.

If you wish to follow this route you are encouraged to have a well-developed business plan prepared before the start of the work term and to submit this plan to the Office of Co-operative Education for final approval. A separate booklet, prepared from various sources by the Co-op Office, outlines such areas as:

- how to start and manage a small business.
- legal structure of a small business.
- basic records for a small business.
- financing a small business.
- writing a business plan.
- identification and commercialization of new products.
- understanding a financial statement.

A listing of material is available at the Co-op Office for students to review and to aid in the formulation of any entrepreneurial activities. Students should be genuinely interested in this kind of activity, and not rely on it solely because they are unable to get placements during the competition.

3.8 Canadian Armed Forces Regular Officer Training Plan (ROTP) in Co-operative Education

The ROTP Co-op Program is open to all students who meet the requirements listed in Appendix A. Students may select from four military careers: maritime engineering, aerospace engineering, land electrical and mechanical engineering, and communications and electronics engineering. Engineers in the Canadian Forces may be called upon to formulate policy as well as design, acquire, maintain and operate strategic and tactical equipment including: aircraft, naval vessels, communication and electronic systems and weapon systems.

Students who complete their engineering degrees through ROTP will spend work terms at
military bases around the country. A complete listing of basic admission requirements and application procedures is given in Appendix A.

3.9 Guidelines for International Students

Many international students attend the co-op engineering program at Memorial on special educational visas. These students bring with them diverse backgrounds, thus enhancing the learning experience for all students. All requirements of the co-op program apply to these students with a few additions.

Some jobs advertised by the Co-op Office will be clearly marked "Must be a Canadian citizen and/or permanent resident." These positions are advertised as such at the request of the employers. Check with the Co-op Office if you are unsure of a particular job.

International students have to obtain a work authorization from Citizenship and Immigration Canada before going on a work term. Because the work term is a mandatory part of your program, the fees for this authorization are waived.

Application forms are available from the Office of Student Affairs, Room A3039. The contact person is Lillian Beresford, the international student adviser. The Co-op Office will provide a letter to support the application.

It is your responsibility to obtain this work authorization and you will not be able to work in Canada without it. Since applications have to be sent to the processing centre in Alberta, it usually takes six to eight weeks for the authorization to be issued. **You do not need a confirmed job in order to obtain your authorization.**

3.10 Preparing For the Work Term

When the job competition is complete, there are several steps that must be followed to ensure that you are prepared for the work term. If there are any questions at this point, please seek the advice of a co-ordinator.

3.10.1 Contacting the Employer

You will be notified when to contact your employer. This notice will be posted and you will come to the office to pick up a contact card that contains the employer's name and phone number. You can confirm to the employer that you have accepted the job offer and arrange for arrival to the job site, including:

- how transportation will be paid, what method to use, etc. (Some employers do not pay travel. This should be discussed during the interview).
- time and date of arrival.
- where to go upon arrival.
- who to contact on arriving.
- any other questions that will make the first day less confusing.

3.10.2 Student Insurance

Buy medical insurance before going on a work term. You may acquire the student accident and sickness plan available at the Council of the Students Union, at a very nominal rate, or some
other plan that will offer protection in the event of an illness or accident. The CSU plan provides protection in Canada and abroad; check with that office to assess the benefits of the plan.

Most employers participate in worker compensation and other plans for their employees. In Newfoundland and Labrador, students who attend education institutions and who are participating in work training programs are deemed for the purpose of work compensation legislation to be workers employed by the province.

3.10.3 Passport

If you acquire a work term position outside Canada you will require a passport. Application forms can be obtained at most post offices and usually take several weeks to process at the local passport office of External Affairs Canada. The passport application can be signed by a professional engineer and one of the co-ordinators will be available to do this.

3.10.4 Student Packages

Before going out to work, you are requested to come to the office and pick up a work term package, which will include all the forms and information necessary to fulfil the requirements of the work term. These forms include:

1. a list of important dates for the work term.
2. a work term confirmation form.
3. a work report outline form (if applicable).
4. the work term performance evaluation form (completed by student and employer).
5. communications component review form (to be completed by the employer).
6. other forms and documents as necessary.

It is your responsibility to ensure you have all of the necessary documents for the work term and to return them at the assigned times.

3.10.5 Daily Diary

A job diary is an evaluation requirement for Work Term 1, but you are encouraged to keep a hand written daily diary on all work terms. These diaries are fundamental to good time management and legal or personal recourse, and will help tremendously in the preparation of the work report. The diary should be contained in one hardcover book for each work term. All entries should be dated and should include:

- 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.
- Problems encountered and how they were resolved.
- Any other items that may prove useful at a later date.

A daily diary can be referred to by you or your employer. The legal community urges all professional persons to record daily events as they pertain to employment. See also Section 5.4 - Problems on the Job.
3.10.6 **Policy Regarding Registration For Added University or College Courses During a Work Term**

The Office of Co-operative Education and the Undergraduate Studies Committee encourage you to take additional courses that will enrich your undergraduate program. We encourage students to take such courses, if they are available, at any local university or technical college. These courses might not necessarily be recognized on a Memorial University transcript, but they will clearly be of benefit.

Because work term assignments are full time, employers have the right to assign working hours to meet the needs of the job. You must therefore obtain prior approval from an employer before registering for a course during the work term. If the job commitment makes it inappropriate, then the employer has the right to refuse such permission. Failure to obtain appropriate employer authorization for such courses will be noted and considered in the student performance evaluation.

3.10.7 **Work Term Ethics**

Positions acquired through the competition have been developed by the Co-op Office and are on loan to you to enhance your co-op experience. You are thus expected to respect and treat these positions with the greatest of care.

While on a work term you are considered an ambassador of the Engineering Co-op Program. Your actions create in the mind of the employers a positive or a negative impression of the program and co-op students in general. This impression determines whether that employer will continue to participate in the program at Memorial or look to other universities.

Co-op students on their way to becoming professional engineers are expected to act in a manner that will leave a positive impression, no matter what the circumstances. Some guidelines are:

- Abide by company rules and regulations with respect to safety, work habits and work hours.
- Respect company property.
- Maintain good relations with fellow employees, management, clients and those whom you encounter in the general public, even when confronted with stressful situations. This indicates maturity.
- Strive to achieve realistic goals that should be discussed with the employer early in the work term.
- Follow regulations as set out by the university regarding work term deadlines, registration, work reports and on-site interviews.
- Maintain professional behaviour consistent with the code of ethics of the Professional Engineers and Geoscientists of Newfoundland (PEG) (See Appendix L).

3.10.8 **Registering for the Work Term**

You have to register for the work term and pay a work term fee. The registration is handled through the telephone registration system, similar to the academic term registration. The Registrar’s Office will send the information to your home address. Please follow the instructions carefully to prevent any penalties.
You must also confirm your work term position with the Co-op Office by sending back, during the first week of the work term, the work term confirmation form that is included in your placement package. See section 5.2 for more details.

**Students who do not register for the work term will not be able to register for the subsequent academic term and will not be considered for promotion to the next academic term.**

### 3.10.9 Guidelines for Work Term Exemptions

1) Students are expected to successfully pass 6 work terms. Exemptions for work terms will only be granted when sufficient rationale has been provided as detailed below.

2) Under *no* circumstances shall a student be exempted from more than two work terms.

3) Students may be exempted from a work term if they have been unable to secure a suitable position and they have documented evidence of having attempted to find work. This evidence must include:
   a) A substantial list of employers contacted (including contact names, dates of contact and nature of interaction),
   b) Evidence of participation in co-op office job competition, and
   c) Emails/letters representing transactions with potential employers.

Requests for work term exemptions due to the inability to secure employment must be submitted to the co-op office by the last day to drop courses without academic prejudice in the semester in question, see University Calendar.

Students may be exempted from a work term for documented reasons (eg. Medical causes, fast track M.Eng. program, or other acceptable reasons) that make it impossible to complete a work term. Requests for exemptions for these reasons must be submitted to the co-op office with appropriate documentation as soon as the reasons become known to the student.

Regulations 22 in the Engineering Co-operative Calendar deals with exemptions from the work term requirements. This regulation should be read in conjunction with the section on the general engineering regulations also given in the calendar.
4.0 GETTING THE JOB

Students should be aware that "[The one] who gets hired is not necessarily the one who can do the job best but the one who knows the most about how to get hired."¹

To know the most about how to get hired, you must develop proficiency in researching the employer, preparing a résumé, submitting a job application and conducting an interview. These four steps are vital if you wish to compete with your peers at Memorial and at other universities across Canada.

4.1 Researching the Employer

When the jobs to be applied on have been selected, the next step is to research the employers in preparation for the job application. This research is essential, since the job descriptions will be very brief, and in some cases will only be generic outlines. The job posted or interviewed for may change by the time you get to the job site. Day-to-day operations within some companies result in priority changes.

Most companies have submitted information on their operation to the Co-op Office, and this information is available to you. Other sources are the library, the Internet, newspapers, or students who have worked with that company. The co-ordinators will also be available to answer any questions that may arise at this point in the competition.

The amount of research carried out will be reflected in the job application and in the questions that will arise during the interview. Feedback from employers indicates that when the students know very little about the company or the job (suggesting a lack of research), the employer's perception is one of lack of interest.

4.2 Résumé Writing

A résumé is a synopsis of your educational background, employment record, extra-curricular activities, achievements and skills. A résumé should be accurate, factual and concise and should demonstrate good written and organizational abilities. In most cases, it should not exceed two pages, especially for work term 1 students.

The résumé is the first contact with a prospective employer and it should leave a lasting impression.

There are many types of résumés - functional, modified functional, chronological and modified chronological. The one most co-op employers prefer is the modified chronological, which consists of seven sections as follows.

---

Personal

This section includes:

- student name.
- address, both local and home (if different).
- telephone, local and home (include area codes).

Human rights legislation prohibits discrimination on the basis of marital status, height, weight, age, sex, and religious or political belief. This information should not be included.

Education

It is not necessary to quote all previous academic terms in the engineering program; quote current term only. It is assumed that you have completed the previous academic terms.

List other post-secondary schools attended or courses obtained prior to attending Memorial.

State high school attended. It is not necessary to include junior or elementary schools.

Awards and Scholarships

Name any scholarships you may have won. If academic marks are worthy of note, list them in this area.

Work Experience

Junior students should list all work experiences but, as students proceed through the co-op program, the least technical jobs may be given less emphasis. All jobs should be listed, beginning with the most recent. For each position, highlight in point form your major duties and responsibilities. Use action verbs to start each point: supervised, constructed, analyzed, researched, prepared, evaluated, planned, etc.

The following three sections are very important, especially for students with little work experience. These items give the employer information on leadership abilities, organizational and communications skills, as well as interests.

Extra-Curricular Activities

Include memberships in societies, clubs or sporting organizations.

Skills

Include knowledge of computer languages, any mechanical or trade skills, drafting and surveying skills, driver's licence, foreign languages, etc.

Interests
Sports, reading, travel, etc.

References are optional. An example of a résumé is provided on the next two pages.

**NOTE:**

Before the start of the job competition, you should obtain a copy of your transcript from the Registrar's Office. All co-op applications require a transcript of marks. Photocopies may be submitted, hence only one original is required each term. **Use a good white bond paper for your résumé; 50 per cent cotton is a good choice.**
SANDY SMITH

University Address
St. John’s, NL
A1X 2Y6
(709) 123-4567
ssmith@engr.mun.ca

Home Address
P.O. Box 123
Any Town, NL
A1B 2Y6
(709) 765-4321

EDUCATION

2002-present
Memorial University of Newfoundland
Faculty of Engineering and Applied Science
Enrolled in Academic Term III Civil
Bachelor of Engineering Co-op Program

2001
ABC High School, St. John’s, NL
Graduated with honours from Grade 12

2000
DEG School of Arts, St. John’s, NL
45-hour course in Shop Practice

AWARDS AND SCHOLARSHIPS

• Current academic average
• Engineering Dean’s List, academic terms 1 and 2
• Pass with Distinction, work term 1
• Award of $100, highest marks in grade 12
• James Moore award, highest marks in Grade 11

WORK EXPERIENCE

May - September 2004
HIJ Company, St. John’s, NL
Work Term 1 Student

• Worked extensively with AutoCAD producing sketches and drawings for survey layout and general construction
• Assisted engineers in underground pipe design and placement
• Completed quantity takeoffs, including concrete, rebar and piping, of buildings and concrete pipe supports
• Kept accurate records of quantities completed on a daily, weekly and monthly basis
• Completed design work for valve access platform foundation and sump drip pans as well as design layout work for main entrance to the site
• Made oral presentations on work completed
June - September 2003  
Rural Development Association, Paradise, NL  
Biologist’s Assistant

- Collected salmon eggs and scale samples for a salmon hatchery project
- Collected data from fishermen concerning the quantity of fish caught in a specific time period, size and weight of the fish
- Wrote daily, weekly and monthly reports
- Presented reports verbally to the association

2000 - 2003  
Morning News, St. John’s, NL  
Paper Carrier

- Supplied papers and flyers to 150 customers

2000 - 2003  
Babysitter

- Responsible for the care of children during weekend evening hours

EXTRA-CURRICULAR ACTIVITIES

- Active with Engineering Society A, Memorial University
- Member of the intramural soccer team, Memorial University
- Editor of the student newsletter Advocate
- Volunteer for the Heart and Stroke Foundation

SKILLS

- Computer skills include Lotus 1-2-3, Microsoft Word, AutoCAD, CADkey, C++
- Familiar with surveying procedures, completed the civil workshop
- Knowledgeable with concrete inspection techniques
- Familiar with water flow data collection and flow instrumentation
- Familiar with the use of lathes, hand held power tools, welding equipment and safety gear
- Good written and verbal communication skills
- Valid driver licence

INTERESTS

- Woodworking, reading, skiing, fishing, swimming and travelling

REFERENCES: Available upon request.
4.3 Preparing the Job Application

When the jobs have been selected and the research completed, the next step is to write a customized job application. This is similar to a cover letter and provides your first opportunity to express personal interest and state your qualifications. The application must be typed. The application should not exceed one page and should contain all of the items outlined in the example on the opposite page. **The job application MUST be submitted on an application form similar to the one shown.**

4.4 Interviewing

Congratulations on receiving an interview! This means the employer has reviewed the job applications and résumés and feels that you may have the background and interest to meet the company’s needs.

Next comes the face-to-face contact in which you will have an opportunity to discuss your qualifications and your interest in the position. The employer will elaborate on the job and will ask many questions to finally determine if you are suitable and whether you have sufficient interest and enthusiasm for the job.

A job applicant who has thoroughly researched the company and who asks informed questions at the interview has from average to excellent prospects for employment. This is a good indicator of how important it is to research the company **before** the interview. To optimize the chances in this process, you should observe the following guidelines.

4.4.1 Interview Time

All interview times will be posted on the bulletin board outside the Co-op Office a few days prior to the interview. **It is your responsibility to note these times and sign up for interviews.** Arrive in plenty of time for the interview and check with the receptionist for any changes in the times and room numbers. Being late for an interview will not make a positive impression on an employer. If you cannot attend, for any reason, notify the receptionist as soon as possible.

**If you fail to attend interviews for other than justifiable reasons you may be prohibited from participating in the rest of the job competition. Such information is documented and kept in your file.**

If you apply for jobs during the competition, but find your own job or are offered a position with your last employer before interviews, inform the Co-op Office as soon as possible so that the employer can be notified. Students should also send a note of thanks to the interviewers thanking them for granting an interview. This is a good gesture because you may want to work for that company sometime in the future.
Dear (Contact Name, i.e. Mr./Ms. Smith)

State fully the job applied for, location and where the position was advertised.

State what you know about the company. This is important because it indicates to the employer that you took the time to do some research and are generally interested in this job and the company. Do not quote vague statements or repeat information from their web site. Information related to current projects, future plans, etc., is appropriate.

The main body of the letter should be two paragraphs at the most. Here is where you tell them what you have to offer and why they should read your resume. This is a good time to read the job advertisement again. In one paragraph (two at the most) you need to summarise your experience and skills, at the same time, you need to respond to the position requirements as per the advertisement. A good way to start this paragraph is with a statement like this: “You will see from my enclosed resume…” then go ahead and tell them something about your career which will immediately get their interest.

Ask for an interview where further elaboration will be made on the interest and qualifications outlined above.

Yours truly,

Your Name
4.4.2 The Actual Interview

The purpose of the résumé is to get you an interview. Your qualifications alone will not get you a job, because there are plenty of equally or more qualified people seeking jobs. **You will only get hired if you excel in one-on-one job interviews.**

Executives from Canada’s 1000 largest companies were asked, “which do you think is the most common mistakes candidates make during an interview?” This is their response:

<table>
<thead>
<tr>
<th>Mistake</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or no knowledge of the company</td>
<td>39%</td>
</tr>
<tr>
<td>Unprepared to discuss career plans and goals</td>
<td>28%</td>
</tr>
<tr>
<td>Limited enthusiasm</td>
<td>22%</td>
</tr>
<tr>
<td>Lack of eye contact</td>
<td>7%</td>
</tr>
<tr>
<td>Unprepared to discuss skills and experience</td>
<td>2%</td>
</tr>
<tr>
<td>Late arrival</td>
<td>2%</td>
</tr>
</tbody>
</table>

This checklist will help you perform well in an interview:

- Dress appropriately. Attire should be suitable for both the position and the work environment. Dress plays a significant role in first impressions, and research concludes that 55 per cent of one's lasting impressions are based on visual perceptions.
- Arrive on time or even a little early for the interview. Arriving much too early indicates extreme nervousness.
- Walk into the interview with a positive mental attitude.
- Know the name (correct pronunciation and spelling), preferred form of address and position title of the interviewer.
- Take your list of references and/or reference letters, as well as extra copies of your résumé and transcript.
- Use a firm handshake. Interviewers perceive a weak handshake as characteristic of a weak personality.
- Consider your posture - sit upright, facing the interviewer and always maintain eye contact.
- Ask questions about the company and the job.
- Show interest in the job and the employer.
- Speak clearly and with confidence.
- Ask well-thought-out questions.
- Project a positive image even when discussing situations that have had a negative impact; this indicates maturity.
- Maintain frequent eye contact.
- Thank the interviewer when leaving and shake hands.

The student **should NOT**:

- Fiddle with objects, chew gum or stare around the room during an interview.
- Indicate that they want the job because it is in their home town. Employers will interpret that you only want the job because of this reason.
- Try to become overly friendly, joke with interviewer or discuss common acquaintances.
- Speak in a negative manner about past employers, schools attended, home town or anything else.
- Appear nervous (This is a normal response but students should be aware that it leaves a negative impression).
4.4.3. **Questions to Expect**

You will probably hear the following questions in an interview, and while you do not want to give "packaged" or untruthful answers, it helps to be prepared. Familiarize yourself with these questions and prepare a well-organized response, and you are likely to find interviewing to be your strong point. Strive to keep your answers positive, employers recommend, and always bring the conversation back to your specific achievements.

- Tell me about yourself.
- Give me an example of a time you reached a desired result by setting priorities.
- What was your biggest accomplishment in high school or university?
- Tell me about a technical skill you learned, either in university or during a job, that you later used with good results.
- What are your strengths and weaknesses?
- Tell me about a creative idea you contributed to a project or activity. How did it make a difference?
- How does your work experience relate to the job we have available?
- How would a previous employer describe you?
- Describe a situation in which you worked well with other people to reach an important goal.
- What do you know about our company? Why do you want to work here?

The first question is usually a warm up question, but it can be difficult to answer because it is so broad. You should consider this a good opportunity to tell the interviewer some good things which are not on the application. This valuable opportunity should not be wasted with flippant remarks or unrelated information.

Hypothetical questions may be asked. These types of questions pose a hypothetical situation and ask for an analysis. This may be a conflict situation with staff or a problem with a client. This gives the employer the opportunity to assess your ability to think on your feet.

**Prohibited Questions**

An interviewer should not ask questions relating to areas of discrimination as defined under the Human Rights Code, and you are not required to answer these questions. Subjects that should not be questioned include:

- national origin.
- credit rating.
- specific age.

- mother tongue.
- religious beliefs.
- birth place.
- political beliefs.
- marital status, spouse, number of children, pregnancy, family plans.
- mental disabilities or health problems.
If you feel that the question has no bearing on the interview or the job being applied for, you should inform the interviewer. The response should be "I am sorry, but I feel that such information is not necessary to evaluate my qualifications for this position." Report such questions to the Co-op Office.

4.4.4 Asking Questions

During the interview, you will have an opportunity to ask questions which may arise from statements that the employer will outline, but students should also include other questions. Questions may be written down and brought to the interview, and notes may be taken during the interview. Use a small note pad for this (not a large binder) and be discreet. Having questions prepared, either written or memorized, will usually help.

Remember that in a good interview the applicant and the employer should each do about one half of the talking.

The employer usually closes the interview by asking if there are any further questions. This should be a clue to ask any final questions and thank the employer for the interview. In most cases a handshake will be offered. Thank the employer and leave the office. If you decide after the interview that you would not accept a position with this company, please inform the Co-op Office. During the job offer process, you will be expected to accept one of the jobs offered.

4.4.5 Employers' Comments on Job Interviews

The following written comments have been received by the Co-op Office from employers and are presented to point out what employers observe. This feedback is discussed with students to help them improve their interviewing skills.

NEGATIVE

- "appears somewhat nervous and lacked confidence".
- "should be more talkative".
- "does not appear to be very interested".
- "abrupt style of speech".
- "concerned about having to do work not done before".
- "student did not do homework to learn about our company; I think this is essential for the interview process".
- "not very communicative, nervous".
- "very few questions, difficult to tell how interested the student was in the job".
- "student was late and I considered not interviewing him".
- "needs help in structuring application and résumé".

POSITIVE

- "confident, experienced and will gain a good deal from this work term".
- "all students interviewed were very pleasant. Some were nervous in the beginning but seemed to relax as time went on".
- "good interview, very mature".
- "well-spoken in the interview".
- "excellent presentation".
- "expresses herself/himself well".
- "communicates well".
- "presents self well".
- "very personable".
- "honest and frank discussion".
5. WORK TERM PROCEDURES

The work term component of the engineering program requires the same level of commitment as the academic component. All work terms and academic terms must be completed in sequence, and successful completion of each work term is a prerequisite to registering for the following academic term and hence graduation.

This section elaborates on all aspects of the work term requirement and will give you adequate knowledge to deal with situations as they arise. Students should also refer to the regulations in the university Calendar, which govern the work term requirements.

5.1 Objectives for the Work Term

The objectives for the six work terms have been developed by the faculty to provide a set of guidelines for the assessment made at the end of the term, see Appendix (B). This assessment is made on two components of the work term: student performance and a communications requirement. These guidelines have been developed for the following reasons:

- students can better assess their progress in relation to their peers.
- the employer can determine students’ capabilities and potential.
- the university has a method of measuring the amount of learning that occurs in the workplace.

These objectives are written to reflect a progression towards becoming a professional engineer.

5.2 The First Week on the Job

During the first week, you must complete the work term confirmation form in the employment package and either fax or mail it to the Co-op Office. If some of the information is not known, send the form anyway and follow up later with the rest of the information. This form is used to advise the Registrar’s Office of your status in the program. The form also provides valuable information for the Co-op Office to communicate with students and supervisors, which is important for sending newsletters and information on registering for the next academic term. It also helps the co-ordinators arrange site interviews and follow up on any aspects of the work term. The section on the salary survey helps the Co-op Office advise employers of typical work term salaries.

During the first week on the job, you are also expected to discuss with their employer the duties, responsibilities and objectives for the work term. The supervisor and the student should complete the first page of the Employers Evaluation Form. The middle page, which is a copy of the front page, should be taken out and sent back to the Co-op Office.

By clarifying these objectives early in the term, both you and your employer can better plan and derive the maximum benefits from the work term. A co-ordinator can also evaluate whether these objectives are realistic based on the your academic and work term experience. These objectives, and how well they are being met, should be discussed with the supervisor about midway through the term, and will be used in the final performance evaluation at the end of the work term.

5.3 The Work Term Communications Requirements

Each work term, you are required to submit to the Office of Co-operative Education a communication component based on some aspect of your job or industry. This will take the
form of a written report, oral presentation, diary and journal, or some other format as determined by the faculty for the specific work term. Additional information will be provided in your placement package as required. Please note that the written report must be submitted bound. **No electronic or faxed versions will be accepted.** The relevant schedule for each work term is as follows:

- **Work Term I** - personal job diary and a work term journal or a short technical report or a portfolio, see Appendix (C)
- **Work term II** - industry company profile, see Appendix (D)
- **Work term III** - descriptive work report, see Appendix (E)
- **Work term IV** - oral presentation, see Appendix (F)
- **Work term V** - formal work report, see Appendix (G)
- **Work term VI** - formal work report or some other proposal that must be approved by a co-ordinator, see Appendix (H)*

**Note:** your employer may have additional requirements for a report. The university’s requirements are listed above.

*Some employers may have their own format for a written report. This is generally acceptable provided that you adhere to the essential elements of good technical communications. Contact a co-ordinator if you are unsure of your format.*

The communication component must be submitted to the Co-op Office by the deadline date specified. As you progress through the engineering program, you will learn that meeting deadlines is part of the discipline of a professional engineer.

In the case of the communication component, and to some extent other work term documents, you 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 your ability to measure time and resources.

The Faculty of Engineering depends on evaluation input from supervisors, with the last two weeks of work being a convenient time for the completion of these documents. Have your report completed in plenty of time for the supervisor to evaluate and submit to the university by the published deadline. The timely submission of all work term documents is taken into consideration in the performance evaluation. Receipt of the report and evaluation documents allows the co-ordinators to complete the overall evaluations and subsequently meet the Registrar's deadline for submission of grades. When all these deadlines are met, students can expect to have transcripts updated by the next job competition.

Students will not be considered for **PASS WITH DISTINCTION** unless all of the work term requirements are submitted in a timely manner. All reports, diaries, etc., submitted (or postmarked) after the published date are considered late. Circumstances for the delay, which are explained in the letter of transmittal, will be taken into consideration by a co-ordinator.

**5.3.1 Purpose of the Technical Report**
The technical report is intended to illustrate the understanding and experience you have acquired during a work term. It also provides the opportunity to develop good writing skills, an important element in becoming a professional engineer. The report provides the forum to do critical analysis, and to develop organizational, presentation, evaluation and prediction skills. The report is sometimes used by the employer to maintain a record of the past term's work, and is used by the university to measure the amount of learning that has taken place.

As well, CAFCE (Canadian Association for Co-operative Education), the body that accredits the co-op portion of the program states "it is essential that a report which is assessed by the academic institution be presented for each work term required by the institution." There are six work terms at Memorial, hence six communication requirements.

The requirement for the report is looked upon favourably when the program comes up for academic accreditation. Since there is no formal writing course in the program, the report is considered essential. Without the report requirement, the work term might be "just another job" instead of the educational experience it is meant to be.

5.3.2 Report Outline

The report proposal form (if required) must be completed and returned to the Co-op Office within the second month of the work term. During that period you are expected to develop enough insight into the operation of your job to identify a report topic agreed to by the employer. The outline should include the title, the purpose of the report and a brief description of the major topics to be covered. A tentative table of contents would also be useful. Many employers will require a report and will already have some suggestions for discussion. In some instances, you may have to rely on your own initiative to develop an appropriate topic. This topic must be related to the job or the industry in which you are employed and must be discussed with the employer. If after the second month you do not have a suitable topic, contact the Co-op Office for assistance. **In any event, try to make the outline as detailed as possible. This will give a co-ordinator the necessary information to review and offer assistance if needed.**
5.3.3 **Confidential Materials**

Confidential and proprietary information should not be included in any of the six communications requirements unless permission has been received from the employer to submit the confidential material and a non-disclosure agreement signed. This form is available from the Co-op Office, and you should determine early in the term if such an agreement will be requested.

If permission is obtained from the employer, each page should be stamped confidential. The submission will be marked by a designated co-ordinator or member of faculty and the marker will provide assurance that no other person will see the material and that no information will be transmitted to any other person. Following a review with the student, it will be returned to the student or employer directly.

Confidential material that may not be removed from the workplace for marking is not acceptable to the university. If such a report is prepared and is designated as such by the employer, you are required to prepare another (non-confidential) report to be submitted for evaluation.

5.3.4 **Joint Work Reports**

The communication requirement of the work terms are meant to give the student a forum to do critical thinking, research, analysis and to enhance their written communication skills. It is used by the university to determine the amount of learning that has taken place. Joint reports are similar to joint assignments or joint exams and are not acceptable to the university.

5.3.5 **Writing the Report**

Before writing the final report, there are several steps you should follow to make this process less complicated and time consuming.

**Prepare an Outline**

Develop your outline before writing begins. It should give a clear path and scope of the report. The outline should contain all major headings as well as subsections and the order in which they will be included in the report. By assessing a well written outline, it is very easy to determine the length of a report and whether that report is achievable in the four-month work term.

**Report Writing**

You can start the first draft of your report when the outline is complete. The background material, the introduction and some of the research can be prepared before any final analysis is complete. In most cases, the ongoing research will not produce results until the end of the work term, and this will cause a delay unless the background material has been developed and written. In some cases, results will not be available at the end of the work term and the research and background will be the only submission as the final report. **The project does not have to be complete to submit a report.** A well written report with evidence of good research is usually sufficient for an evaluation.

Errors to avoid when writing a report:

- avoid excessive use of words like "however", "etc."
- inaccurate statements like "a large amount", "a huge ship"; be specific "the amount was
$128,050.90" and "a 40M ship".

- slang words and phrases, e.g., "the water roared out".
- nonsense statements, e.g., "it is not valuable but it has great value".
- poor spelling.
- sentences with no verb.
- ending sentences with a preposition, e.g., "a preposition is not a thing to end a sentence with".
- poor sentence structure.
- writing in the first and second person.
- not being objective, e.g., "if it was not for the foreman, this study would have produced results".
- using contractions, e.g., "wasn't" instead of "was not".
- lack of illustrations.
- poor layout; the report should be on 8.5 x 11 inch page with 1.5-inch border on the left side and 1-inch on other sides.

**Revising the Draft Report**

Remember, your first attempt at writing will produce only a draft report with less concern for spelling, sentence structure, grammar and punctuation. Now comes the time to "polish" the report and edit out and rewrite some of the material. When revising, remember it must be clear, concise, complete, accurate and objective. Try to imagine whether a reader with little or no knowledge of the project will be able to follow and understand the report.

When the final draft is written, give it to someone else to read and ask for criticism. If there is no one available to read the report, put it away for a few days and then reread it. Often a second opinion or a final reread will help isolate areas that need revision.

The length of the final report will vary with the subject matter but as a general rule it should not be less than 15 typewritten pages excluding appendices, table of contents, diagrams and the summary. The report should reflect a substantial sample of the work that you have carried out over the work term.

**Remember, the employer is under no obligation to provide you with time to write a report during working hours.**

**5.3.6 Co-operative Engineering Associates Program**

For the most part, the evaluation will be completed by the co-ordinator who was assigned to you. However, the Faculty of Engineering and Applied Science in conjunction with the Professional Engineers and Geologists of Newfoundland and Labrador (PEG.NL) has developed a program to use the expertise of professional engineers in the review of the communications components of the 6 co-operative work terms.
The program is known as the Co-operative Engineering Associates Program (CEAP) and is administered by PEG, NL. It was introduced as a pilot project during 2003. Under this program, professional engineers become familiar with the various written and oral communications required for the work term and participate in their review. Through this program the engineering profession is able to keep in close contact with the engineering program and students benefit from the wide range of experience and backgrounds available for reviewing their reports and presentations.

5.4 Problems on the Job

The experience of the Co-op Office is that few students encounter serious problems while at work. If however you have a situation that you feel is a potential problem, you should first try to resolve it through open dialogue with the employer. If the difficulty is not resolved, please contact the Co-op Office for further advice.

Over the years, relations with virtually all employers regarding pay, benefits and conditions of work have been very professional. For example, most employers will treat you as a regular full time employee and follow the employment standards for the province or country in which you are located.

Most employers will provide you with a written offer of employment which you should keep for your own records. If an employer does not provide an employment offer, you should request one, especially if you find your own job. As a further preventive measure, all students should keep a personal diary. Typical information includes days worked, overtime hours, field trips, significant milestones, meetings attended, pay days, etc. Such a record can help clarify events that have occurred but that would be difficult to recall or prove at a later date. See also Section 3.10.5 - Daily Diary.

The following publications contain general information on this topic:


Appendix (K) provides some information on the Occupational Health and Safety Regulations. You should be aware of your rights under this act.

5.4.1 Use of the Internet through access provided by Employers

As you are aware, many organizations provide Internet access to their employees including their work term students. These organizations often have specific policies governing Internet usage, especially with respect to access for personal use. All aspects of Internet usage would normally be explained during orientation to the job, typically during your first few days at work.
You may be required to sign statements in which you agree to follow the organization’s policy in this area. It is particularly important to fully understand their guidelines and procedures regarding personal use of the Internet, as well as to understand all clauses that you sign and agree to follow. You can also expect that the employer will monitor your usage of the Internet over the duration of the work term.

If employers do not address this issue during initial orientation, we would strongly suggest you ask your supervisor for specific guidance and to use common sense if no guidance is forthcoming.

If you have any questions or require additional information on this issue, please contact one of the Co-ordinators.

5.4.2 Labour Disputes

If you are required to join a union, do so and follow the normal course of action as laid out by that union. If a strike is called, you are expected to follow your co-workers in any strike duties as deemed necessary by the union. Contact the Co-op Office in the event of a strike.

If a strike is called and you are not part of a union, report to work in a normal manner. If you are prevented from entering the workplace, leave and call the employer, advising of the situation and asking advice. Continue this course of action until the end of the strike. Again, advise the Co-op Office and further instructions may be given.

In either of these situations you are not expected to endanger your personal safety.

5.4.3 Sexual Harassment

The Office of Co-operative Education realizes that sexual harassment can be, at the least, embarrassing, intimidating and counter-productive to the concept of co-operative education. Appendix (I) outlines the office's policy on sexual harassment.

Sexual harassment is a form of discrimination based on sex, and is prohibited by the Newfoundland and Labrador Human Rights Act. The office's policy applies to all students of Memorial University's co-operative programs who are employed at Memorial University and outside of Memorial University during work terms.

Sexual harassment is any sexually oriented behaviour either that:

(a) negatively affects an individual's work performance or creates an intimidating, hostile or offensive environment for learning or working.

(b) explicitly or implicitly endangers an individual's continued employment or impacts upon the conditions of employment or performance evaluation.

(c) undermines an individual's personal dignity or self-worth.

This includes unwelcome sexual advances, presence of pornographic material, requests for sexual favours, unnecessary touching or patting, suggestive remarks or other verbal abuse, leering at a person's body, compromising invitations, physical assault and any other verbal or physical conduct of a sexual nature directed at an individual(s) by a person who knows or should know that such attention is unwanted.

5.4.4 Observe Employer Regulations
In the course of the work term you will be informed of, or will come in contact with, a variety of employer regulations. These are the product of experience in the operation of the particular organization, and the more you learn about the firm the more clearly you will understand the reasons for the existence of these rules and regulations. You are thus expected to follow these regulations.

5.4.5 **Attitude to Fellow Workers**

Some co-workers may not be graduates of a university or technical college, and thus some tension may be caused by the presence of university students on the job. Some may feel you are trying to take their jobs, or feel that you have been given a better chance to acquire work experience than they. In most cases these individuals have acquired their experience through technical programs with many years of work experience and have gained a sound knowledge of the operation in which they work. It is your responsibility to diffuse any situations which may arise and to help develop mutual respect. With the right attitude you will gain the respect of, and acquire valuable knowledge from these co-workers.

5.4.6 **Quitting a Job**

University regulations state that if a student quits a job without permission from the Co-op Office, the student will be given a FAIL for that work term. Seek the advise of a co-ordinator before taking any action.

5.4.7 **Sickness or Injury**

Students who become ill for an extended period of time or receive a serious injury are advised to contact the Co-op Office. In some cases students may be given a medical exemption from the work term and are advised to obtain a doctor's letter outlining the nature of the illness or injury (refer to the university *Calendar*, on this matter).

5.5 **WORK TERM EVALUATION**

There is an evaluation procedure for each work term where a final mark is given for the report and your overall performance. The final assessment is completed by a co-ordinator, who will take into account the following points:

5.5.1 **Deadlines**

One of the responsibilities of becoming a professional engineer is being able to meet deadlines. All deadlines will either be published in the university *Calendar* or will be available at the Co-op Office and **it is your responsibility to be aware of these dates**. How you plan to meet university deadlines will be taken into account in your performance mark.

The report must be submitted or post-marked by the deadline date specified. Each work term we request supervisors to complete performance and report evaluations during the last two weeks of work. Students are then responsible for returning these completed forms to the Co-op Office by the date specified. Students who submit documents late may receive a fail for the work term. Contact your co-ordinator to discuss any aspects of your work term, well in advance of the deadline, to avoid potential problems.

5.5.2 **On-Site Interviews**
The purpose of the work term interview is to help students and employers in maximizing the benefits of the work term. It may be considered as verification to both that the work term is progressing in a positive manner. More specifically, the objectives of the visit are to:

- activate the reflective learning process.
- monitor the learning that is taking place, and help students and employers to maximize the learning opportunities.
- discuss career plans with the student and provide advice on an as-needed basis.
- discuss general academic objectives and any course options for the next term.
- review prospects for the employer's continued participation in the Engineering Co-operative Education Program.
- obtain referrals to other potential employers.
- obtain an improved understanding of the job and work environment.
- provide feedback to faculty on the academic components of the engineering curriculum.

During many of the work terms, you will have on-site interviews with a faculty representative. During this interview you should be prepared to answer questions on your duties and responsibilities and to show some of your work to the interviewer. The work report will be discussed and you will be given an opportunity to ask questions on any aspect of the work term.

The interviewer will also wish to speak with your supervisor and assess your performance to date.

The information acquired in this interview will be used to counsel you if a weakness is observed and will be used along with the employer's evaluation at the end of the work term to arrive at a performance grade.

On-site interviews are combined with a program of marketing co-operative education to potential employers and you will be notified in advance. Telephone interviews are also used, or you could be asked to discuss your work term immediately upon returning to the next academic term. If you have not had contact with your co-ordinator by the end of the third month at work, you should call and provide an update of the work term.

5.5.3 Reflective Learning

Reflective learning may be considered as the process by which an individual identifies what has been learned from a prior experience. In our situation, some of the learning may have been consciously undertaken based upon objectives set by the student, the employer or both. Equally important is the learning that may have taken place unconsciously as a result of a specific experience.

For example, learning the skill of how to use and apply a software applications package may have been identified as an objective. The reflective learning process would involve the student in evaluating how effectively he or she has learned this skill and subsequently, how this skill can be applied to future experiences.

With respect to an assigned project, the objective may be stated in terms of solving a specific problem. There could be considerable reflective learning when the student identifies how much was learned about time and project management. Further reflective learning may be realized when the student identifies what has been learned about a particular company, organization or industry. This process can be thought of as a continuous feedback loop accelerating learning
and performance.

5.5.4 Performance Evaluation

The performance grade will be based on the assessment of the supervisor's comments as well as that of the site interview and any other information available to the co-ordinator. The supervisor's feedback is submitted on the "Employer Evaluation" form.

5.5.5 Work Term Communications Evaluation

The work term communications reports will be evaluated by either a co-ordinator or representative of faculty (not necessarily the person who conducted the on-site interview), using the format outlined in Appendix (J). Employer comments submitted on the "Work Report Review By Employer" form will also be used in the evaluation.

5.6 Exit Interview

Near the end of the work term, you should arrange with your employer to have an exit interview.

This interview should be used to:

- Discuss how well the objectives set out early in the work term were met.
- Have the employer fill out the "Employer Evaluation" form and discuss it with you. This will help to point out strengths and weaknesses and areas for improvement. NOTE: If you are offered a job, make a decision quickly. This allows the employer plenty of time to post for another student in the event that you do not return.
- Discuss job prospects for the next work term.
- Students who are offered their jobs back and do not confirm with the employer and the Co-op Office are not eligible to apply on that job in the competition.

Students may wish to follow up with a thank you letter to the employer thanking them for the opportunity to work in their organization.

5.7 Promotions

The promotion from the work term to the next academic term follows a similar procedure as the promotion from the academic term to the work term. Promotion recommendations are made by the Co-op Office at a meeting of Engineering Faculty Council early in the next academic term.

Appendix (J) contains the work term evaluation guidelines. The Co-op office may make a recommendation of PASS WITH DISTINCTION, PASS, INCOMPLETE or FAIL.

A PASS WITH DISTINCTION or PASS means that you are promoted to the next academic term. An INCOMPLETE indicates that some information is not available to faculty council to permit them to recommend a clear pass; it usually means that the employer's evaluation has not been received. The student with an incomplete is not permitted to register but is allowed to attend classes. These students are requested to contact their last employer to obtain the necessary documents to permit them to be registered for the next academic term. A FAIL normally means that a student is not promoted to the next academic term and is required to repeat the work term.
5.8 Appeals

Failed students may appeal the decision by submitting, in writing, a letter of appeal, to the Chairperson of the Appeals Committee, Faculty of Engineering and Applied Science, within one month of the issue of the marks by the Registrar's Office.

5.9 Work Term Awards

Awards are available to students who excel in various components of the work terms. **To be eligible, it is important that you have your supervisor complete the nomination forms included in your work term package.**

The Cossitt Award

This award is chosen by the Professional Engineers and Geoscientists of Newfoundland & Labrador (PEG-NL) based on a nomination from the student's supervisor. Available to Work Term 5 and 6 students, it has a monetary value of $250.

The PEG-NL Eastern Chapter Award

PEG-NL-Eastern Chapter makes available three awards for Work Term 3 ($100, $200, and $300) based on the work report and the employer’s nomination.

The Eastern Chapter provides final choice of the winner, based upon review of documentation of a select number of students recommended by the Office of Co-operative Education. The recommendations are based upon student work performance, communications component, student academic standing and supervisor nomination.

Paul S. Batstone Scholarship

This scholarship was established in memory of Paul S. Batstone who spent 20 years promoting co-operative education at Memorial University and was a co-ordinator in the Faculty of Engineering & Applied Science until his death in 2003. Based on scholarship standing, it will be awarded to a senior student completing a spring work term who has demonstrated a high level of commitment to Engineering Co-operative Education and has made a significant contribution to their employer in the past work term. It is awarded by the Senate Committee on Undergraduate Scholarships and Financial Aid on the recommendation of the Dean, Faculty of Engineering and Applied Science with a nomination from the student’s employer and input from the Office of Co-operative Education. It has a monetary value of $500.00.

5.10 Benchmarks

The Faculty of Engineering publishes the newsletter *Benchmarks*, which has a national circulation. It is used to promote co-op to new employers and to be a forum for the presentation of significant achievements of students on a work term. Students who have had material published received awards or have been recognized for significant achievements are requested to contact the editor of *Benchmarks*, Michelle Osmond, or the Co-op Office.
APPENDIX A

ROTP BASIC ADMISSION REQUIREMENTS

Basic Admission Requirements

Applicant must:

a. be a Canadian citizen.

b. write and attain an acceptable level on a general ability test.

c. undergo a Canadian Forces medical examination and meet an acceptable medical standard.

d. undergo an evaluative interview and attain a suitable recommendation.

e. be accepted for admission to the Faculty of Engineering and Applied Sciences at Memorial University of Newfoundland.

f. achieve a satisfactory result on a Canadian Forces fitness examination.

Benefits

Each student receives:

a. reimbursement of tuition, student union registration, library and student health fees.

b. provision of required instruments, books, supplies and a personal computer.

c. financial benefits such as a regular salary, and, in certain instances, housing assistance allowance and travel allowance.

d. free medical and dental care, family dental plan, and a pension plan that you participate in while in university.

e. an opportunity to undertake post-graduate studies.

Timing

a. Pre-Academic Term 1: If selected prior to commencement of the first academic term, students normally attend the Basic Officer Training Course (BOTC) in St-Jean, P.Q., during the summer preceding Academic Term 1.

b. Academic Term 1: If selected during Academic Term 1, students will normally be made an offer to commence subsidization at the beginning of Academic Term 2. BOTC is usually completed during Work Term 1.

c. Post-Academic Term 1: If selected, students are normally made an offer to commence subsidization with next academic term or, in some cases, the current academic term. BOTC is usually completed during the first available work term.

d. During Work Terms: If application is made during a work term, subsidization should coincide with the start of the next academic term. BOTC is usually completed during the first available work term.
Points to Note

a. Subsidization is contingent upon successful completion of BOTC. Failure of BOTC will result in release from the Canadian Forces.
b. ROTP co-op students receive second language training, as do other ROTP candidates.
c. Upon successful completion of BOTC, the student will normally spend subsequent work terms in a variety of technical and operational placements with the Canadian Forces.
d. Upon graduation, students receive the bachelor of engineering degree from Memorial University and are commissioned as second lieutenant in the Canadian Forces.
e. After commissioning, there is an obligatory period of service ranging from a minimum of three years to a maximum of five years.
f. Failure of an academic or work term, may result in release or repeat of the appropriate term without subsidization.

Further Details

For further details on engineering career opportunities with the Canadian Forces, call 570-4935 or toll-free 1-800-856-8488 or write to:

Canadian Forces Recruiting Centre St. John's
Sir Humphrey Gilbert Bldg.
165 Duckworth Street, P.O. Box 2028
St. John's, NL, A1C 6B5
APPENDIX B

WORK TERM OBJECTIVES

001W Engineering Work Term 1 (Spring Semester)

For most students this work term represents their first experience in an engineering or related work environment and as such represents the first opportunity to evaluate their choice of pursuing an engineering education. Students are expected to learn, develop and practice the basic standards of behaviour, discipline and performance normally found in their work environment.

002W Engineering Work Term 2 (Winter Semester)

Students are expected to further develop and expand their knowledge and work-related skills, accept increased responsibility and challenge, and to demonstrate an ability to deal with increasingly complex work-related concepts and problems. Recognizing that a selection of discipline must soon be made (Academic Term 3), students should be consciously assessing the various engineering disciplines relative to their individual interests.

003W Engineering Work Term 3 (Fall Semester)

Students should have sufficient academic grounding and work experience to contribute positively to the engineering design and problem-solving processes practised in the work environment. Students can become better acquainted with their chosen discipline, can observe and appreciate the attitudes, responsibilities, and ethics normally expected of engineers. Students are expected to show greater independence and responsibility in their assigned work functions.

004W Engineering Work Term 4 (Spring Semester)

Students should anticipate greater participation in their selected engineering discipline and become more experienced and proficient with the appropriate design procedures. Students are expected to acquire improved speed and accuracy, to accept greater responsibility and to function with less direct supervision. The place and importance of recently acquired analytical skills in engineering analysis should become more apparent and be applied when appropriate. The purpose and application of specifications and codes should be demonstrated when necessary.

005W Engineering Work Term 5 (Winter Semester)

Students may expect to be involved in design projects to the extent of preparing formal proposals and report, including specification and plans. Self confidence and initiative should be sufficiently developed at this stage to enable a student to work at such functions with limited supervision.

006W Engineering Work Term 6 (Fall Semester)

In this final work term students should be expected to be entrusted with the supervision of others and of certain aspects of engineering projects, as required by the employer. In so doing the student should exercise and demonstrate the many professionally related qualities expected of a graduate engineer about to embark on a professional career.
The work report is expected to be based on a significant project assigned by the employer. It will match, in technical content, structure, and communication skills, those to be expected of a graduate engineer. The results, conclusions or recommendations of the report, as submitted to the supervisor, should reflect the application of sound engineering practice.
APPENDIX C

WORK TERM 1 COMMUNICATIONS GUIDELINES

The communications component for work term one consists of preparing two separate documents which must be submitted for evaluation; additional communications requirements (e.g., technical report, manual) may be requested by the employer. The two documents to be submitted to the Engineering Co-operative Education Office are:

1. Personal Job Diary
2. Work Term Journal or Short Technical Report or Portfolio

These documents should be submitted along with a letter of transmittal as shown on p67 and postmarked no later than the last official day of the work term as shown in the University Calendar.

Personal Job Diary

A personal job diary (PJD) is an important document for an engineer to maintain. Provided it is kept properly, an engineer's job diary can be used to determine the time and substance of job-related activities and events. It may be used to reconstruct events that occurred some time in the past, if the need arise. Therefore it must be accurate. In order for the job diary to be accepted as an authentic record the following guidelines should be observed:

1. It should be kept in a date-stamped or numbered, hardcover notebook rather than a loose-leaf binder. This removes the possibility of losing or replacing sheets either of which would render the job diary ineffective. Choose a diary of suitable size that will cover the work term time and provide adequate space for detailed entries.
2. Entries should be recorded on a daily basis, 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. The requirement applies whether the work takes place in the field or office.
3. 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 or removing parts of the diary raises doubts about the authenticity of the content.
4. Events should be recorded as they happen including routine details, instructions, decisions, equipment, meetings, phone calls, problems, quantities, times, reminders and conditions. 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.
5. Neatly handwrite or print; do not type.
6. Do not use it as a lab book to record data from experiments, tests, etc. These test results should be recorded in a separate book.

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 also remember that they are learning to keep a job diary properly. They will be asked to show their job diary during co-operative education monitoring and are expected to keep a job diary on all of their work terms.
Certain characteristics are desirable in a job diary. These include clarity of meaning, neatness and use of drawn illustrations or freehand sketches where appropriate. Pages should be numbered in sequence. This helps establish authenticity. Cramming entries into confined spaces such as a full or part page can lead to the loss of important details and an overcrowded appearance. Take as much space as is needed and write or print legibly.

Since entries are made on a regular basis, the job diary should end and be submitted on the last official day of the work term.

**Work Term Journal**

While the PJD provides a factual record of job events the work term journal (WTJ) allows the student to reflect on and interpret job events. The WTJ should be prepared with the general learning objectives of the work term in mind. These are the development of the following:

- a clearer understanding and confirmation of career alternatives and choice.
- professional attitudes and behaviour.
- a recognition of workplace learning.
- interpersonal skills and maturity.
- an ability to work as a team person.
- an ability to be self-motivated.
- an understanding of professionalism.
- an understanding of the broader environment.
- an ability to manage a work related project.
- technical skills appropriate to the position.

The calendar description of Engineering 001W describes the typical setting in which most students find themselves:

> For most students this work term represents their first experience in an engineering or related work environment and as such represents the first opportunity to evaluate their choice of pursuing an engineering education. Students are expected to learn, develop and practice the basic standards of behaviour, discipline and performance normally found in their work environment.

Specific work term objectives related to the job and established in conjunction with the supervisor as well as personal objectives must also be addressed in the WTJ.

Dated, detailed entries should be made, at least on a weekly basis, and should be typed. The early journal entries should focus on job content, objectives and preliminary observations. Subsequent entries should deal with job progress, realization of work term objectives, feedback from the supervisor, new assignments and any other job elements which the student would like to include. Final entry should be reflective of the overall events of the work term including workplace learning, employer feedback, how well objectives were met, your own assessment of the work term and identified needs to be met in future work terms. This should be a summary of the whole work term. A typical journal should be about 10 to 15 pages long and can be bound in any acceptable fashion. The journal should not be written in the same booklet with the personal job diary, since they serve different purposes. Because entries are being made on a regular basis, the journal should be concluded at the end of the last week of work and submitted to the Engineering Co-op Office along with the diary on the last official
day of the work term.

**Short Technical Report**

Some employers require the students to prepare a report based on their work term activities. In these cases a short technical report (STR) will be accepted along with the diary. These reports may be a problem, project, feasibility study, investigation, or design could form the basis of a STR. The format or structure should be based on the following:

- Summary
- Introduction
- Discussion
- Conclusions
- Recommendations
- References
- Appendices

Each of these is described in Appendix G. The STR should be approximately 15 double-spaced, typewritten pages, excluding appendices.

**Portfolio**

A portfolio, to be submitted in work term 1, is a showcase of items that you have personally created or produced. It is not a list of items in which you have had limited or cursory input. In some job situations, a portfolio may not be appropriate and will therefore not satisfy the communication requirement for work term 1. Discuss your job situation with your co-ordinator before starting a portfolio. However, this does not mean that you cannot start a personal portfolio and continue adding to it in future work terms, see below.

**Purpose:**

The purpose of the portfolio is to demonstrate your skills, talents, abilities and accomplishments. The portfolio is a tool that will help you document relevant academic, work related and personal achievements.

**Content:**

The following is a list of items that should be included in a portfolio for work term 1:

1) A cover letter as outlined in Appendix G.
2) A 2-3 page introduction and background on the material presented.
3) Description of any training courses and lectures attended whether formal or informal.
4) Commendations or written feedback received.
5) List of any formal meeting attended and or chaired.
6) Sample of original designs, sketches, drawings well indexed and organized.
7) Copies of written documents or reports.
8) If you plan to continue the portfolio, add other items as deemed necessary from the list below. The following is a list of items that you should consider including if you wish to continue a personal portfolio for your entire undergraduate career. This will be useful in organizing your work term activities both as an undergraduate as well as a graduate:
1) Personal qualities and employability skills assessments, see attached.
2) A current copy of your resume and transcripts.
3) Samples of work done on each academic term, designs, reports, etc.
4) Samples of achievements in volunteer work, recreational activities, part time jobs, or other extracurricular involvement.
5) A summary of work search for each work term which should include:
   (a) List of contacts made, addresses, e-mail, etc and an outline of discussions with them.
   (b) Employment research and current trends in various employment sectors ie, research and development, oil and gas, pulp and paper, in areas of interest.
   (c) Employer research which should include items on current projects on employers of particular interest to you.
   (d) List and detail on funding sources.
   (e) Other items as needed.
6) Job description for the position accepted each term.
7) Work term learning plan and objectives for each work term.
8) Samples of work done on each work term, reports, diaries, training courses, drawings, etc.
9) A copy of the Employer Performance Assessment Forms for each work term.
10) Student Assessment of Learning for each work term.
11) Other items as deemed important.

Remember, a portfolio is a personnel document; therefore, what you include depends on your assessment of your goals and may change as you advance in the program. The portfolio is dynamic; items may be removed as they become unnecessary or outdated.
Your Personal Skills Checklist

Many people have more skills than they think they have. Using the specific information in the following generalized areas, make a list of your skills and abilities. As the list grows, you’ll be impressed by all your knowledge and talents. Use this list when you are preparing your answers to the interviewer’s questions, as well as when preparing your resume.

**GETTING THINGS DONE SKILLS**
List things in your personal and business life you started and finished or projects you were assigned and completed.

**LANGUAGE SKILLS**
Ability to write well, speak well, express yourself well in English and also foreign language skills, etc.

**MONEY MANAGEMENT SKILLS**
Everything from balancing your checkbook, stock purchases, inventory, developing a budget, using numbers, etc.

**ATHLETIC & OUTDOOR SKILLS**
Swimming, skiing, tennis, biking, hiking, farming, landscaping, working with animals, etc.

**PERSUASIVE SKILLS**
Ability to sell your ideas, getting people to work together, negotiating, etc.

**INSTRUCTIONAL SKILLS**
Able to impart ideas and information to others clearly and convincingly.

**MACHINE OR MECHANICAL SKILLS**
List equipment you are able to use, repairs you can make, etc.

**IMAGINATION SKILLS**
Inventive, come up with innovative answers to problems, idea person.

**PERFORMING SKILLS**
Ability to sell, public speaking, acting, musical ability, etc.

**ARTISTIC SKILLS**
Sense of humor, sense of design and color, ability to create, paint, draw, sculpt, carve, dance, play musical instruments, etc.

**LEADERSHIP SKILLS**
Leading others, problem solving, initiative, etc.

**PLANNING & ORGANIZING**
Establishing priorities, designing projects, taking a long term approach.

**RESEARCH & ANALYZING SKILLS**
Anticipate problems, analyze and direct them, research to find solutions.

**OTHER SKILLS**
Developed from hobbies, reading, experience, etc.

**OBERVATION SKILLS**
Listen carefully, perceive and observe, appraise and learn by looking.

**APPENDIX D**
WORK TERM II COMMUNICATIONS GUIDELINES

The communications requirement for Work Term 2 consists of an industry company profile (ICP) and a personal job diary. Students are already familiar with the diary guidelines from work term one. The job diary will not be submitted but should be available for review. The words industry and company are used here in a broad sense and are meant to include governments, regulatory agencies, etc. It is anticipated that employers will see the preparation of this document as a useful exercise and may benefit from it. Employers should be consulted early in the process for clearance, assistance and access to information.

Many students will work in areas where they may have limited knowledge and for the most part will have a narrow focus in the day-to-day activities of the industry in which they are working. They will have some involvement in projects however, they may not get an appreciation for the overall scope of these projects or how these projects fit within the industry. The ICP gives the student an opportunity to research and explore the general industry and let them assess what future opportunities that may exist for them in that industry. By doing this formally in work term 2, the student will develop the skills necessary to apply this research tool to future work terms in other industries. This research is very useful in writing job applications.

The guidelines for preparing the ICP are as follows:

The ICP will consist of a letter of transmittal, summary, and sections dealing with the industry in general; the company, department or agency within the industry; the student's role within the company and an appendix of promotional material on the company. The entire document, exclusive of the Appendix, should be in the range of 15-20 pages, typed and double-spaced. Documents submitted in the Appendix may be retained by the Co-op Office. The cover letter and summary should be prepared according to the guidelines in Appendix G. The ICP is due on the last official day of the work term as recorded in the Engineering Calendar.

In some cases, an employer may require a technical report as part of the student's employment record. This report should be prepared as per employer guidelines or the guidelines as given in Appendix G. The report may be submitted for evaluation and include as “The Student’s Role” in your ICP.

1.0 GENERAL INDUSTRY PROFILE

This section of the ICP should focus on the industry in general rather than the company. Its purpose is to provide a broad description of the industry from its origins to the present day and to discuss how the industry will evolve in the future. The roles of science, technology, and engineering should be outlined. Some typical questions and topics are suggested below:

History of the Industry

- Origins
- Development and Growth
- Present Day

Describe how the industry began and what were the main factors in its growth as an industry.

What market does the industry reach?
How are its products or services used in the world?

Explain how it developed into the industry that it is today.

Add anything pertinent to the growth (positive or negative) of the industry; - new inventions, new technology, etc., which brought it to present day.

Describe present day operations of the industry as a whole.

**Industry Structure and Distribution**

- Global
- International
- National
- Local

What is the geographic distribution of the industry?

What resources and other factors determine its location?

What is the market share distribution?

How is the industry financed?

How is the industry regulated?

What is the role of science, engineering and technology?

What products and/or services does the industry provide?

**Future of the Industry**

- Where is the industry going?
- How is it changing?
- Research and development.

Comment on what the future may bring for this industry. How will new technologies affect it?

It may be appropriate to interview some people in the organization such as president or chief engineer regarding this item.

What research and development is ongoing in the industry? How will this affect the industry?

**2.0 COMPANY PROFILE**

This section of the ICP should focus on the specific company. In the case of a department of government, crown corporation, or agency you should focus on a significant portion of the organization. The following areas are provided as a guide but you may add or delete as required:
(Please do not include information that may be deemed confidential, if unsure check with your supervisor ie. Private companies financial information or organization charts)

- a background and short history of the company or organization.
- an organizational chart showing the reporting structure of the organization.
- the key personnel and their technical background.
- the equipment (fixed and mobile) and plant processes used.
- the capability of the company, plant capacity and range of expertise.
- the financial structure (sole proprietor, partnership, incorporated company, department of government), major source of financing (personal investment, publicly traded, taxation, etc.) and business risks.
- annual sales, sales strategy, future sales, annual budget, company mission and entrepreneurial spirit.
- the company's market or client base (market share and scope).
- the company's commitment to product and customer quality - describe any quality programs, adherence to quality standards, effectiveness in enforcing regulatory matters.
- involvement in the area of research and development, or the use of R&D by others.
- overall plans for the future - product development, market expansion, extension of services offered, increased plant capacity.
- issues related to worker safety and training (include any courses available or attended).
- how does the company promote itself, recruit staff and develop its human resources.

3.0 STUDENT'S ROLE WITHIN THE COMPANY

This section of the ICP should focus on the student's role within the company. Some typical questions and topics are suggested below.

Projects:

Describe the project(s) that you were exposed to or participated in this term. Do not confine the description to your role but give the overall scope of the project(s).

Job Details, Duties and Responsibilities:

Briefly describe your job. Include such items as:

- Main purpose of your job.
- Work environment (office, workshop, field work, travel etc.) Do you work within groups or independently? Give examples of your working relationships.
- Major activities associated with your job.
- For each activity, describe what standards or objectives by which the activities could be evaluated. For example, the activity could be to design a piece of equipment and the standard could be ISO 9000. Another activity could be to generate written reports. The standard could be APA (American Psychological Association) or some other writing format.
- Do you use time management or project planning techniques? (Give examples). An example may be a project planning schedule with milestones for each activity. Another example may be goal statements, work plans, target dates and progress summary.
- List equipment or any materials you are required to operate or use in the completion of your job.
- What level of decisions do you make with and without your supervisor? (Give examples).
- Describe any special features of your job that has not been covered above.
Job Challenge:

Reflecting on your academic background, work experience and general knowledge, describe what special skills or special knowledge are required to perform your job. Provide examples of each.

Educational Enhancement:

Describe the opportunities available to learn new techniques, skills, applications, etc. Outline courses or seminars offered and any other mechanism offered to you to gain knowledge.

- What specifically did you learn eg. software applications, design skills or techniques, construction supervision, personal development?
- What are the long-term influences this position could have on your career?
- How will your résumé change as a result of this job?

4.0 APPENDICES

- Industry documents
- Company documents
- Year-end reports
- Product specifications
- Other

These documents may be retained by the Co-op Office. Please provide for this by including an additional set or using an envelope which can be easily removed.
APPENDIX E

WORK TERM III COMMUNICATIONS GUIDELINES

The communications requirement for Work Term 3 is the preparation of a written descriptive report to be submitted the Office of Co-operative Education for evaluation.

Report Structure

The descriptive report follows the same outline as a formal report given in Appendix G however it does not contain conclusions and recommendations. The sections to include are:

- Cover Letter
- Cover Page
- Title Page
- Summary
- Table of Contents
- Introductions
- Discussions
- References & or Bibliography
- Appendix

These headings are covered extensively in Appendix G.

Type of Report

The report usually describes some process, subject or project relevant to the student’s work place. Sometimes descriptive reports are used for training purposes or to upgrade information on some aspect of the job that the student is working in. The report should emphasize the organization and communication skills, as well as on the preparation of a summary. You should be aware that the summary, while only one page, is probably the most important component of the report. One employer, Westinghouse, reported that the most frequently read component is the summary, followed by the introduction, conclusions, body and appendix.

The report should be typed, 15-20 pages double spaced, not including appendices and should be bound. Section 5.3 in this handbook covers many aspects of writing the report and there are many good reference books available either in a book store or library. One good reference is a book Guidelines for Report Writing by Ron S. Blicq. You are encouraged to select a good reference book and use it throughout your undergraduate career.

Some students may select to write a formal report as outlined in Appendix G. This type of report is widely used in industry to document a feasibility study, a new design etc. It consists of six main sections and 13 subsections.
**Report Subject**

You should identify your topic early in the term in consultation with your employer. If you are having trouble identifying a topic, call a coordinator. An outline of your proposed report should be sent to the Co-op Office on the form provided. This outline should include the title, the purpose of the report and a brief description of the major topics to be covered. A tentative table of contents would also be useful. A coordinator will review this outline and discuss it with you if required. Refer to section 5.3.3 for information on confidential reports.

**Layout**

The report should be double spaced with 1-1/2 " space on the left hand side for binding and 1 " space on the other three sides. The print should be of a standard size not too small or too big and refrain from using fancy print. A number 12 font is appropriate.
APPENDIX F

WORK TERM IV COMMUNICATIONS GUIDELINES

General

The requirements for work term IV is an oral presentation. The presentation will take place on campus usually during the first or second week into the next academic term. All students must present during the time specified. Faculty and students will be encouraged to attend the presentations. The length of the presentation is normally 10 minutes with 5 minutes for questions. The evaluation will be carried out by coordinators and faculty attending the presentation, using the criteria attached.

In addition to the presentation, students are required to submit a cover letter, 3-4 pages of summary of the presentation and a paper copy of the overheads used in the presentation. This must be submitted on the last day of the work term as published in the university Calendar.

Guidelines

There are three main reasons to give a presentation: to inform, to persuade, as with a sales presentation, and to entertain. You are giving a presentation to inform.

Material delivered in an oral presentation should differ from written material in its level of detail, organization and presentation. Reduce the level of detail with respect to scientific procedure because in a 10-minute presentation, detail will confuse the audience. Therefore, prepare an oral presentation differently from a written technical report. Concentrate on a couple of main points and keep reminding the audience what the central theme is by relating each major section of the presentation to the theme. Avoid giving presentations on broad subjects. Narrow your presentation down to one that can offer meaningful results. It is also important that you customize your presentation to the audience and that industry related terms be fully explained as you go through your talk.

Your strategy should be: tell the audience what you are going to say, say it, and tell them what you have said. This must be done in a clear, concise and accurate manner about a subject that you may be more familiar with than your audience. Remember that the audience wants to know what you have studied and why, how you went about your research, what you discovered and the implications of your research or study. An oral presentation should create awareness and an interest in the topic that should generate questions at the end. There are some key points to keep in mind when planning to give a presentation. They are:

Research

Remember that too much material is better then too little. You should start by assembling all of your material and selecting the most appropriate. If it is appropriate, prepare a reference list and use it during your presentation. Credibility is established by referring to supporting material such as papers, studies, statistics etc that can back up some of your statements.
Visual aids

There are many types of visual aids that may assist you make a good presentation. They include computers, slides, videos and overheads. The overhead is the simplest to create and has the following advantages:

- The machine is operated from the front of the room which enables the presenter to face the audience and maintain eye contact.
- The presenter can point to important items, highlight and add detail as the talk proceeds.
- Transparencies can be prepared easily.
- Complex information can be presented in a systematic sequence through the use of overlays, etc.
- Overhead projectors seldom "crash" as with computer presentations. Please note that the overhead is the only form of visual aid that will be accepted.

Size and layout

- Use 8.5" x 11" standard sheets of paper with the writing reduced to a space of 7.5" x 9.5" on the right hand side of the page. This will ensure that the written portion of your transparency fits on the screen.
- Limit the overhead to one idea per page and use a large enough font to be seen from the back of the room. This may require you to experiment with several fonts to get the best results. Typed overheads are far superior to hand written overheads and adds a more professional touch to your presentation.
- If you have more than one idea on an overhead, cover up the material that you are not dealing with using an extra sheet of paper. This makes the audience focus on what you are talking about at that time.
- Use a letter style that is easily read by viewers at the back of the room. A simple style is much better than a fancy, excessively bold or thin line print.
- Short headlines may be in capitals but you may find that phrases of more than six words stands out more if printed in lower case letters.
- Use as few words as possible. There are several ways to do this. One way is to use graphs, charts, a picture or key words. Some authors suggest that you limit the message to six words per line and six or fewer lines per overhead.
- Vertical spacing between lines is also important especially when viewing from the back of the room. Some authors suggest that the space be 1.5 times the height of the average lower case letter.

Prepare an outline

In preparing an outline, you are able to organize your thoughts into sequence that makes for a more orderly flow of ideas. An outline allows the audience to follow your train of thoughts. The key points that should be included are:

Introduction

State your name, even if you have been introduced, where you worked and your work term. Give a brief overview on the company or your department. Always assume that there may be some people in the audience who have limited knowledge of your company or project.

Central idea
Introduce your topic, its purpose and scope and what your role was in the project. An overhead or some other visual aid would be useful at this point. The key is to get the audience's attention. It is appropriate for you to use a startling statement, ask a question or use a bit of humour to start off a talk. This technique may be used throughout your presentation, the key is to be discreet.

The central idea is the minimum that the presenter would like the audience to remember.

Body

As with a technical report, this is the section where you discuss some of the details of your project or study. Remember to concentrate on the macro and limit the micro details of the project. Details questions may be asked at the end of the presentation. Overheads should be used throughout the presentation to add clarity and detail to you talk.

The body of the presentation should deal with the main ideas and should be limited to four or five. Too many and you lose any detail that you wish to present. These main ideas should show your research, design or any information to support the central theme. An overhead listing the main points would be useful.

Summary and conclusions

A good presentation always ends with conclusions and a summary detailing what you have presented and how your contribution to the project will benefit the company. A list can be presented on an overhead for the audience to follow.

Questions

Encourage the audience to ask questions. If no one ask a question, ask one of yourself i.e., "you may wonder why I choose this project"? "Well, the reasons are ....". This usually gets results.

Cue Cards

The level of written material is dependent on the confidence that you have about your presentation. Many speakers prepare cue cards to keep them on track. These are usually key words or short sentences. Many authors suggest that you not write out the entire presentation because you may tend to read from the written page and this becomes boring.

Practice

It is suggested that you present your talk to someone else prior to giving it formally. This will determine its final duration, allow you to fine tune the presentation and give you added confidence. Have that person set in the back of the room and offer suggestions as to your audibility, mannerisms, posture as well as the flow of the presentation.
WORK TERM PRESENTATION EVALUATION

<table>
<thead>
<tr>
<th>Name of Presenter</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Start Time</th>
<th>End Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question/Answer Start Time</td>
<td>End Time</td>
</tr>
</tbody>
</table>

### CONTENT

**Introduction**
- Student/role
- Topic
- Objective
- Background

**Organization of Material**
- Logical Order
- Main Points Explained
- Internal Summaries/Transitions
- Well Defined Summary

**Technical Content**
- Appropriate Subject
- Level of Challenge
- Knowledge Displayed
- Research/Analysis

### DELIVERY

**Posture/Presence**
- Use of Notes/Cue Cards

**Vocal Ability**
- Use/Quality of AV Material

**Speed of Delivery**
- Confidence/Enthusiasm

**Annoying Mannerisms**
- Audience Interest

**Use of Appropriate Gestures**
- Time Management

**Eye Contact**
- Response to Questions

### COMMENTS/SUGGESTIONS

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**PRESENTATION EVALUATION**

- Excellent □
- Above average □
- Satisfactory □
- Needs improvement □
- Re-present □

Evaluated by: _______________________

---

**WORK TERM PERFORMANCE**

- Excellent □
- Above average □
- Satisfactory □
- Needs improvement □
- Unsatisfactory □

---

**OVERALL WORK TERM EVALUATION** based upon the Presentation and Work Term Performance.

- Pass with distinction □
- Pass □
- Fail □

Comments: __________________________________________
APPENDIX G

WORK TERM V COMMUNICATIONS GUIDELINES

This is the first time, for most students, to write a comprehensive formal technical report. The report should be based in your job or the industry that you are working in. It should illustrate a substantial amount of research and analysis to permit you to draw detailed conclusions and recommendations. You should discuss a topic with your employer because the purpose of the report, ideally, is to provide your employer with a record of your job or project. The topic and the report should reflect your level in the engineering program. Sometimes a report may not be required by your employer, however, this will provide you with the opportunity to explore a topic of your own interest. This will enhance your technical and writing abilities and still satisfy the communication requirements of the work term.

The formal technical report may take various forms from operating manuals, software documentation, feasibility studies, etc. If you are in doubt, discuss it with your co-ordinator.

The report should be at least 15 pages, excluding appendices, double-spaced, typed and bound. The most common format of a formal technical report is outlines below.

**The Formal Report**

The word `formal' indicates that a certain formal structure is used for arranging the report. This structure distinguishes the formal report from other types. Formal technical reports usually address substantial subjects such as

- the feasibility of a design or project.
- an evaluation of a new process or product.
- an environmental impact review.
- project reports.

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

```
SUMMARY
INTRODUCTION
DISCUSSION
CONCLUSIONS
RECOMMENDATIONS
APPENDICES
```

These six sections contain all of the information in the report but some other parts are included to assist readers in finding the information.

These include the following:

---

2 This guide is based on *Guidelines for Report Writing* by Ron S. Blicq., Prentice-Hall Inc., 1992, pp 8,11, 12
Very often these other parts of the report 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 with each other; for example, the table of contents and list of illustrations may be combined. Or they may be eliminated entirely; for example, acknowledgements, preface, list of illustrations, statement of scope, references 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. The following treats each part in the order of appearance in the report:

A FORMAL REPORT IS A REPORT WITH A FORMAL STRUCTURE. THE ESSENTIAL PARTS ARE THE SUMMARY, INTRODUCTION, DISCUSSION, CONCLUSIONS, RECOMMENDATIONS AND APPENDICES.

COVER AND TITLE

The title is an important feature of the report. It should provide a window into the subject. Telling words like evaluation, feasibility, progress, status and impact are useful in the title. It should be specific enough to give the reader a good idea of what the report will be about but not so long as to become 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 Structure" may be written as "Concrete Structures": Design and Construction." The title should be shown on the cover, which may be either plain or specially designed for the report. Use large letters to make the title readily visible.
LETTER OF TRANSMITTAL

The letter of transmittal is an integral part of the report and is bound with the report inside its cover. The letter of transmittal is addressed to the person for whom the report was prepared. It usually 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. Normally, it should not exceed one page.

A letter of transmittal must accompany your work report. A typical letter of transmittal is shown on the opposite page.
Dear Mr./Ms. (co-ordinator’s last name):

During this work term (Engineering 004W), I was employed with the Town of ______ 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.

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

The enclosed work report resulted from a request by __________, the town's environmental officer concerning PCB's 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)

Your Name
TITLE PAGE

The essential elements of the title page are as follows:

- the full title of the report.
- the name of the organization for which the report was prepared and sometimes the person for whom the report was prepared.
- the name of the originating organization and sometimes the name of the person preparing the report.
- the date the report is presented or issued and any other identifying reference such as a report number.

The title page should be neat and simply laid out so that the four essential elements are clearly seen. Visual appeal and dignity of appearance should also be evident.

SUMMARY

The summary is one of the most widely read parts of the report. Many readers rely on it to decide if they need to read the full report.

It is placed after the title page in a formal report but before the Table of Contents. It is the first numbered page of the report being given by the Roman numeral ‘i’. The Summary gets a page to itself and if the material doesn't use up the full page it is centred to give a neat appearance. The SUMMARY must be brief, but complete; it should present the essentials of the report.

The SUMMARY provides a synopsis or digest of the report; it is often thought of as the section that can be read by a busy executive to get a good idea of what the report does.

The SUMMARY should contain the following:

- a statement of what the report is about (purpose, scope, problem, background). Begin with a statement that gets the reader's attention.
  Example: (Several minor accidents have occurred at our loading ramp to warehouse No. 2 in the past six months).
- a statement of the methodology used.
- a statement of the results obtained.
- a statement of the main conclusion.
- a statement of the main recommendations and their costs.

Although the SUMMARY is placed at the beginning of the report, it is not prepared until after the report is written. The SUMMARY must stand on its own, it is based on the report and should not give any information, conclusion or suggestion not stated in the report. The SUMMARY should not cite any references nor refer to any figures on tables.

A SUMMARY STATES WHAT WAS DONE, WHY IT WAS DONE, HOW IT WAS DONE, WHAT WAS FOUND OUT, WHAT WAS CONCLUDED AND WHAT IS BEING RECOMMENDED.
TABLE OF CONTENTS

A formal report should contain a Table of Contents just after the SUMMARY as page ii of the report. The Table of Contents provides a quick guide to the contents of the report and helps the reader locate specific information quickly. 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. If the report contains many illustrations, the 'List of Illustrations' follows the Table of Contents. Infrequent illustrations dispersed throughout the report are not listed in the Table of Contents.

STATEMENT OF SCOPE

A separate Statement of Scope is sometimes included with reports prepared by consultants for a fee. This statement outlines the limitations or scope of the report. These may be imposed by the authority requesting the report or by the person preparing it, and can be related to cost, time, depth of study, methodology, equipment and any factors to be specifically included or omitted. The scope of the report may also be given in the letter of transmittal, introduction and the summary of the report. A separate Statement of Scope should not be included unless there is a specific need for it.

ACKNOWLEDGEMENTS

A separate section for acknowledgements can be justified only if there are a great many persons or organizations to be given credit. It is used more for books and publications than for reports.

Acknowledgements, if given, should be specific. Statements like 'I would like to thank everyone who assisted me with this report' are useless unless your intention is to insult anyone who did help.

PREFACE AND FOREWORD

It is not necessary to include a preface or foreword in a formal report. These are used for books and formal publications.

INTRODUCTION

The purpose of the INTRODUCTION is to provide the reader with all the background necessary to properly read the report. It introduces the subject, describes the circumstances leading up to the decision to prepare a report on this subject and presents the reason(s) it was undertaken along with any important limitations.

There are three main components to the INTRODUCTION:

- The **Background**, which describes the events leading up to the existing situation, what work has been done on the subject previously and by whom, and why the study or project is necessary.
- The **Purpose** defines what the study or project (or report) is to achieve, who authorized it and the specific terms of reference.
- The **SCOPE** outlines three limitations imposed on the report and states who imposed them. Cost, time, depth and extent of study methods, equipment, factors to be included or omitted, are mentioned here.

**THE INTRODUCTION PROVIDES THE READER WITH THE BACKGROUND PURPOSE AND SCOPE OF THE REPORT**
DISCUSSION

This is the only main section that cannot be called by its functional name. The word DISCUSSION is never used as a single work heading; it may, however, be used as part of the heading. A title which reflects the actual subject is more appropriate. For example, Design and Construction of Reinforced Concrete Structures as a main section title gives the reader a good idea of what is to follow.

This section may be started on a new page or continue on after the INTRODUCTION. Whatever method is chosen should be used consistently throughout.

It is important to present the information in the DISCUSSION logically. The order of subsections and the order of information within each section will determine how easily the reader will follow your writing. You must decide what your reader is most interested in knowing, what else the reader needs to know and answer any questions that may arise. Three pitfalls must be avoided.

- Writing beyond the reader's comprehension, e.g., use of technical terms and jargon the reader may not understand.
- Writing that fails to answer the reader's questions, e.g., doesn't anticipate the reader's reaction to facts, events, questions and concepts the subject presents.
- Writing that either underestimates or overestimates the reader's knowledge of the subject, e.g., assumes the reader know either more or less about the subject than he/she really does.

All of these can be avoided if the readers are clearly identified. Will the report be read primarily by management, by specialists knowledgeable in the subject or by non-specialists with limited knowledge of the subject?

After this has been done it is a good practice to return to the terms of reference and jot down the points of most interest to your reader(s), arrange them logically, e.g., in order of interest, function or importance. This can then be worked into an outline of headings and subheadings that will form the backbone of the discussion.


ILLUSTRATIONS

Illustrations do not form a separate part of the formal report but are used as required throughout the report. If the report uses many illustrations, it's a good idea to provide a List of Illustrations after the Table of Contents to help the reader find specific illustrations. In technical reports, illustrations often provide vital information they may be difficult to portray using wiring alone. 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. The following guidelines apply:

- Illustrations include drawings, figures, tables, sketches, schematics, flow charts, diagrams, graphs and pictures.
- An illustration should be used if it will help the reader understand the material.
- Each illustration should be numbered sequentially and provided with an appropriate title or caption.
- The illustration should be simple, neat, clear and easily understood. 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 mean to assist the reader in understanding the subject along in the text as close as possible to the point of reference. The narrative at this point must refer to the illustration.
- When referring to the illustration at other points in the report five the illustration title, number and page number on which it occurs. For example, Figure 4, Foundation Wall Section, page 18.
- Illustrations should not take a full page. In this way some explanatory text can be inserted either above or below the illustration on the same page.

ILLUSTRATIONS BELONG IN THE REPORT WHERE THE REFERENCE OCCURS. EACH SHOULD HAVE A NUMBER AND TITLE. THEY SHOULD BE SIMPLE, NEAT, CLEAR, USEFUL, RELEVANT AND EASILY UNDERSTOOD.

CONCLUSIONS

Conclusions and recommendations are sometimes 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. Results are obtained by applying a method or approach to the problem under consideration. For example, if you studied the condition of all concrete bridges in St. John's and found some were in poor condition with cracks, exposed reinforcement steel, spalling, etc., you would simply report these findings as your results. These might be suitably tabulated by bridge, by defect or by area. These are results, not conclusions. If you apply some criteria to these results such as safety, maintenance, life expectancy, you might conclude that certain bridges are in poor condition and have a limited life expectancy. CONCLUSIONS are drawn from your results by applying the criteria or guidelines established in the DISCUSSION and the INTRODUCTION. There should be no surprises for the reader. Everything presented in the CONCLUSIONS must have been discussed in previous sections of the report. That is the function of the DISCUSSION section.

CONCLUSIONS should meet the following criteria:
- be as brief as possible with their main points drawn from the concluding paragraph or statement of each section of the discussion.
- be presented in descending order of importance.
- satisfy the requirements established in the introduction (background, purpose, scope).
- never advocate action.
- be presented clearly and accurately in a neat format, for example, in point form and numbered.

CONCLUSIONS ARE LOGICAL STATEMENTS WHICH DEPEND ON PREVIOUS SECTIONS OF THE REPORT FOR SUPPORT. THEY SHOULD BE ACCURATE, BRIEF AND CLEAR. THEY DO NOT ADVOCATE ACTION.

RECOMMENDATIONS

The RECOMMENDATIONS section presents the preferred plan of action. Normally several courses of action are open, each with attendant advantages, disadvantages, costs, limitations and ramifications.
These should have been previously discussed and conclusions drawn based on the criteria being applied.

In the bridge study previously referred to you 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. Do you recommend a new bridge or a renovation program? The recommended plan of action is now being put forward.

RECOMMENDATIONS should met the following criteria:

- be specific, definite and clearly stated.
- be strong and advocate action. Don't use statements beginning with 'I think...', or I feel...'.
- satisfy the requirements established in the INTRODUCTION.
- follow logically from the conclusions.
- be presented in a logical order, e.g. importance, chronologically, functionally.

RECOMMENDATIONS PRESENT A DEFINITE PLAN OF ACTION IN CLEARLY STATED TERMS. THEY SHOULD BE STATED IN THE ACTIVE VOICE AND FOLLOW FROM THE CONCLUSIONS.

LIST OF REFERENCES

A LIST OF REFERENCES should be provided if your work is based on or refers to other reports, documents, texts, presentations, discussions, etc.

As you prepare your report you use documents written by others as support for your work. All specific statements depending on one or more source documents must be referenced or 'documented'. Referring to these documents is known as 'documenting' or 'documentation'. Statements with openings such as 'It has been shown...', 'It has been demonstrated...', 'Research has shown...', 'It has been proven...', require documentation. Quotations must be attributed to their source by a specific reference and set apart from your writing by use of quotation marks.

Also general statements summarized from source documents as well as inferences and ideas based on other's work should be documented to their source. General information that can be considered public knowledge in the field need not be documented. The requirement for precise documentation is greater for academic and scientific reports than for business and other technical reports. However, all reports should be referenced to the level that an interested reader can identify the sources and obtain them if desired. This is accomplished by two related devices.

- When a statement requires documentation a numeral is placed at the end of the statement in parenthesis, e.g. (1). The first reference gets the number `1'. The next reference gets the number `2', etc.

- In your LIST OF REFERENCES the first document referred to is listed as number 1. The documents is listed in sufficient detail that the reader can easily locate the exact source, if desired, e.g. 1. Ron S., Blicq, Guidelines for Report Writing, Prentice-Hall Canada Inc., Scarborough, Ontario, (1982), p. 146.
The next new document referred to becomes number 2 in your LIST OF REFERENCES and so on. If the same document is referred to more than once, an abbreviated listing is given in the LIST OF REFERENCES for each reference beyond the first. This need only contains the author's surname(s) and the page number(s) referred to. In this way all references are numbered sequentially as they occur in the report and can be found in the exact same numerical order in the LIST OF REFERENCES. No references should be listed that are not referred to at least once in the report.

Ensure that any material used from the electronic media is also appropriately referenced. One of the websites is located at www.beadsland.com/weapas/.com

If you need to reference a discussion or speech, give the person's name, organization, the details of the reference, location and date. For example, if the third reference in your report is based on a discussion with your supervisor, the reference could read:

3. David Supervisor, Newfoundland Hydro, St. John's, Newfoundland, in conversation with Jane Student, Newfoundland Hydro, Bishop's Falls, Newfoundland, 14 April, 1993.

TECHNICAL REPORTS MUST BE DOCUMENTED. THE LIST OF REFERENCES PROVIDES DETAILS OF DOCUMENTS SPECIFICALLY REFERRED TO IN THE REPORT. THE LIST IS PREPARED IN THE SAME NUMERIC ORDER IN WHICH THE REFERENCES OCCUR.

BIBLIOGRAPHY

A BIBLIOGRAPHY is usually included in a formal report. It may be thought of as an expanded reference catalogue for further reading. BIBLIOGRAPHY entries are not numbered; they appear in alphabetic order of authors' names. Generally a BIBLIOGRAPHY is used with professional journal articles, textbooks and academic theses; a LIST OF REFERENCES is used with technical and business reports. Both may be used if the report justifies it.

USE A BIBLIOGRAPHY TO PROVIDE AN ALPHABETIC LIST BY AUTHOR OR FURTHER READING OR REFERENCE MATERIAL ON THE SUBJECT OF YOUR REPORT. DO NOT NUMBER THE ENTRIES. INCLUDE YOUR REFERENCES HERE ALSO.
APPENDICES

It is a mistaken notion that any piece of information or document not included in the DISCUSSION section of the report can be included in the APPENDICES. All information provided in an APPENDIX must be referred to in the report. It cannot simply be included because the report writer has it available.

APPENDICES OR APPENDIXES (either is correct) 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. The following criteria apply:

- 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 APPENDICES MUST BE REFERRED TO IN THE REPORT. THEY CONTAIN SUPPORTING MATERIAL TOO LARGE OR EXTENSIVE TO INCLUDE IN THE OTHER REPORT SECTIONS. THEY APPEAR IN THE ORDER FIRST REFERRED TO, HAVE THEIR OWN PAGINATION AND ARE IDENTIFIED BY LETTERS.
WORK TERM VI COMMUNICATIONS GUIDELINES

The Communication Requirement for work term six is a written report directly related to the work or the work environment of the employer. The student, in consultation with the employer, may determine the format of the report. Students may choose to follow the format of a formal technical report as outlined for work term five or they may choose a format that is used within their employer’s industry.

The level of challenge should be consistent with the responsibility and work normally expected to be performed by a junior engineer. As students will be using a format recognized within their industry, therefore no specific guidelines for different formats are provided. Instead, students should familiarize themselves with, and use the industry standard.

Some examples of formats that may be used are tender packages including plans and specifications for a project or product design; operating manuals including sketches and procedures; software documentation including program description and code; design drawings including material and production specifications; inspection reports, conformance, or other documents that are signed off or stamped by a professional engineer; project proposals, feasibility studies, patent applications, progress and briefing reports are other examples of well-established formats that may be used. If you are in doubt, consult with your co-ordinator.
APPENDIX I

POLICY ON SEXUAL HARASSMENT

Sexual harassment is a form of discrimination based on sex and is prohibited by the Newfoundland and Labrador Human Rights Commission in addition to the Canada Human Rights Act.

Sexual harassment is any sexually oriented behaviour that:

a) negatively affects an individual's work performance or creates an intimidation, hostile or offensive environment for learning or working.
b) explicitly or implicitly endangers an individual's continued employment or impacts the conditions of employment or performance evaluation.
c) undermines an individual's dignity or self-worth.

This includes unwelcome sexual advances, requests for sexual favours, unnecessary touching or patting, suggestive remarks or other verbal abuse, leering at a person's body, compromising invitations, physical assault and any other verbal or physical conduct of a sexual nature directed at an individual(s) by a person who knows or ought reasonably to know that such attention is unwanted.

The Office of Co-operative Education realizes that sexual harassment can be, at the least, embarrassing, intimidation, and counter-productive to the concept of co-operative education. We urge any students who consider themselves to be victims of sexual harassment to contact the sexual harassment adviser at Memorial, ph. (709) 737-2015 to discuss the issue and a course of action.

We also encourage you to discuss the issue with one of our co-ordinators. This will make our office aware of any such activity and may help avoid a similar situation from occurring with subsequent work term students.

ACTIONS

Because the university has no direct control over employees of companies who employ students of the co-operative programs, it cannot be responsible for a student while they are on work terms. The university is responsible, however, for taking students' concerns seriously and ensuring students have a positive work term experience. Students working within Memorial University who consider themselves to be victims of sexual harassment are covered by the university's procedure.

The following is a suggested course of action available to work term students who consider themselves to be victims of sexual harassment.

1) Many regular employers of co-op students will have sexual harassment procedures of their own that students can use. Students are advised to contact the person responsible for the sexual harassment procedure within their place of employment.
2) In the absence of sexual harassment procedures, an individual working within Newfoundland and Labrador can seek action from the Human Rights Commission. In the case of students working outside the province, but within Canada, students can approach similar institutions within those provinces.
3) Failing a satisfactory result from (1) or (2) above, a student can take legal action.
4) For students who are working overseas, it is essential that you contact the sexual harassment adviser at Memorial or our office as soon as possible to discuss the issue and a possible course
of action.

5) Collect calls will be accepted at the Co-op Office any hour of the day or night because this is considered to be an urgent matter.
APPENDIX J

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.

1) REPORTS

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

a) the ability to research the subject appropriately, to conduct the necessary analysis and to effectively substantiate conclusions and recommendations.

b) the ability to summarize findings and communicate, in writing or orally, in a professional manner.

e) the ability to apply concepts learned in the academic environment to learning objectives in the work environment.

Communication Evaluation

The communication component will be evaluated by a co-operative education co-ordinator or delegate. Evaluation of the communication component will result in one of the following classifications:

a) **Excellent** - 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 excellent the communication component should have
   ✦ all required sections be complete, including letter of submittal, summary and references
   ✦ very few spelling, grammar and word processing errors
   ✦ a professional presentation
   ✦ technical content verified by employer

b) **Above Average** - 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

c) **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
acceptable effort put into report production

a) **Resubmit (Needs Improvement)** - the written communication component has a number of weaknesses but should 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
- adequate effort put into communication component production

e) **Unsatisfactory** - 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

2) **WORK TERM PERFORMANCE**

The key ingredient to a successful work term is the student's ability or openness to learn and/or further develop work related skills. Some of these skills include organization and planning, analysis, problem solving, written and oral communications, interpersonal relationships, and leadership skills.

Within the first three weeks of the work term, the student in consultation with his/her supervisor will establish performance and personal objectives for the work term. This should also include identification of skills necessary for the student to develop in order to perform the duties and responsibilities of his/her position. The objective is that through the process, the student will acquire new skills which will be reflected in the workplace.

- When a student has been given the opportunity to resubmit the communication component, the student will not be eligible for a grade of Excellent.
- Normally, a student will be given a two-week period in which to resubmit the communication component.
- If the communication component is not revised to an acceptable standard with in the specified time, a FAIL will be recommended.

**Performance Evaluation**

The work term performance will be based upon a co-ordinator’s assessment of the employer’s evaluation, information gathered from contact with the student, employer, and others in the workplace, and timely receipt of all work term documentation by established deadlines. The ability to plan to meet deadlines is essential to a professional engineer. Work term performance evaluation is considered to be the “term mark” for the work term.

Evaluation of work performance will result in one of the following classifications:
The performance designation is the measure of success in fulfilling the requirements of the work place taking into account the challenges and opportunities available to the student. It also reflects the working relationship established by the student with the faculty office of co-operative education. A majority of the items under each category must be maintained in order to qualify for that designation.

EXCELLENT: The student has completed an excellent work term, demonstrated by:
- Student highly challenged or seeks new challenges
- High degree of skills and attributes
- Excellent work ethics
- Excellent time management skills, completes assigned task, accurately, ahead of schedule
- All documentation submitted in a timely manner
- Maintains an excellent working relationship with the faculty office of co-operative education
- Exceeds employers expectations in all areas

ABOVE AVERAGE: The student has completed a very good work term, demonstrated by:
- Highly or moderately challenged
- Generally good skills and attributes
- Very good work ethics
- Good time management skills, completes assigned task, accurately and on time
- All documentation received
- Maintains a good working relationship with the faculty office of co-operative education
- Exceeds or meets employers expectations in most areas

SATISFACTORY: The student has completed a good work term, demonstrated by:
- Acceptable level of challenge
- Acceptable skills and attributes
- Good work ethics
- Acceptable level of time management skills, most assigned task completed on time with few errors
- Most documentation received
- Maintains an acceptable working relationship with the faculty office of co-operative education
- Meets employers expectations

NEEDS IMPROVEMENT: 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. The performance has weaknesses, demonstrated by:
- Low level of challenge and student does not seek new challenges
- Some weakness noted in skills and attributes
- Acceptable work ethics
- Time management skills need improvement, some assigned task not completed or with errors
- Some of the documentation late or not received
- Working relationship with the faculty office of co-operative education needs improvement
- Did not meet all employers expectations

**UNSATISFACTORY:** Performance is unacceptable, demonstrated by:
- Low level of challenge and student does not seek new challenges
- Unacceptable level of skills and attributes
- Poor work ethics
- Poor time management skills, assigned task not completed in acceptable time frame or with high degree of errors
- Most or all of the documentation not received
- Poor working relationship with the faculty office of co-operative education
- Did not meet employers expectations

3) **OVERALL WORK TERM EVALUATION**

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

a) **Pass with Distinction:** To receive a recommendation of PASS WITH DISTINCTION, a student needs to obtain an evaluation of EXCELLENT in both the communication and work performance components of the work term.

b) **Pass:** To receive a recommendation of PASS a student must achieve an evaluation of SATISFACTORY or better in the communication component and a NEEDS IMPROVEMENT or better in the performance component of the work term.

c) **Fail:** A student receiving an UNSATISFACTORY 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
APPENDIX K

OCCUPATIONAL HEALTH AND SAFETY

Occupational Health and Safety is concerned with the working conditions and work process at places of employment. All persons at a workplace have a fundamental right to an environment that neither impairs their health nor imperils their safety. It is the responsibility of government, workers and employers to develop and foster an awareness to health and safety matters.

The Occupational Health and Safety Act provides for specific obligations on government, employers, workers and self-employed persons, to make the workplace as free from health and safety risks, as possible.

Major points of the Occupational Health and Safety Act

**Duties of Principal Contractor** – The principal contractor engaged in a project shall ensure that employers, workers and self-employed persons performing work in respect of that project comply with the Act and the regulations.

**Duties of Employer** – An employer shall ensure the health, safety and welfare of his or her workers, provide the necessary personal protective equipment, systems and tool; provide information, instruction and training; and ensure that the workers are familiar with the use of devices and equipment provided for their protection.

**Duties of the Employee** – A worker shall take reasonable care and cooperate with the employer, to protect his or her health and safety and that of other workers in the workplace.

**Right to Refuse Work** – A worker may refuse work if that worker has reasonable grounds to believe is dangerous to their or any other persons health and safety. If the worker is reassigned to other work, or has not been reassigned, the employer shall pay the worker the same wages or salary and grant the worker the same benefits the worker would have received if the worker continued to work, or until he or she is able to return to work.

**Stop Work Order** – If the conditions of the workplace pose an immediate risk to the health and safety of workers or others near the workplace, a written order to immediately stop work will be imposed and will not be lifted until the remedial measures in the order are in place. The employer shall continue to pay the workers the wages or salary and grant him or her the benefits the worker would have received if the order to stop work were not in place.

**Occupational Health and Safety Committees/Representatives** – A workplace where 10 or more workers are employed must establish an OHS Committee of not less than two nor more than 12 persons, where at least half be representing the workers, to monitor the health, safety and welfare of the employees. In the workplace, where less than 10 persons are employed, a worker health and safety representative will be elected.
Workplace Hazardous Materials Information System (WHMIS) – The Workplace Hazardous Materials Information System is a national system designed to ensure that all employers obtain the information that they need to inform and train their employees properly about hazardous materials used in the workplace. Established uniform requirements are in place to ensure that the hazards of materials produced, sold, imported or used in Canada are identified by suppliers and employers using standard classification criteria.

First Aid Regulations – Regulations are in place which govern the level of first aid required, the number of workers required to hold valid first aid certificates, and the quality of first aid kits in each workplace.

When a worker of member of the public files a complaint with respect to possible unsafe working conditions at a particular workplace, the complaint will be investigated by an Occupational Health and Safety Officer. The Branch will investigate all complaints received, whether they are anonymous or if the complainant wishes to leave their name. In any case, the name of the person registering the complaint will be kept in confidence. A complaint may be filed at any of the Occupational Health and Safety offices listed below.

Frequently Called Numbers

Occupational Health and Safety – St. John’s
General Inspections and Mines ................................................................. 729-2706
Medical and Hygiene Services ................................................................. 729-2644

Occupational Health and Safety – Corner Brook ............................................ 637-2361

Occupational Health and Safety – Grand Falls-Windsor ............................ 292-4345

Occupational Health and Safety – Wabush ................................................... 282-2611

Occupational Health and Safety – Clarenville ............................................ 466-2768

Report a Serious Accident (24-hour line) ................................................... 729-4444

Workers’ Compensation Commission ....................................................... 778-1000
APPENDIX L

CODE OF PROFESSIONAL ETHICS

Professional Engineers and Geoscientists of Newfoundland

A professional engineer or geoscientist shall recognize that professional ethics are founded upon integrity, competence and devotion to service and to the advancement of human welfare. This concept shall guide the conduct of the professional engineer or geoscientist at all times.

Duties of the Professional Engineer or Geoscientist to the Public

A professional engineer or geoscientist shall:

1. have proper regard in all his or her work for the safety, health and welfare of the public.
2. endeavor to extend public understanding of engineering and geoscience and their role in society.
3. where his or her professional knowledge may benefit the public, seek opportunities to serve in public affairs.
4. not be associated with enterprises contrary to the public interest.
5. undertake only such work as he or she is competent to perform by virtue of his or her education, training and experience.
6. sign and seal only such plans, documents or work as he or she has personally prepared or which have been prepared or carried out under his or her direct professional supervision.
7. express opinions on engineering or geoscientific matters only on the basis of adequate knowledge and honest conviction.
8. have proper regard in all his or her work for the well being and integrity of the Environment.

Duties of the Professional Engineer or Geoscientist to Client or Employer

A professional engineer or geoscientist shall:

1. act for his or her client or employer as a faithful agent or trustee.
2. not accept remuneration for services rendered other than from his or her client or employer.
3. not disclose confidential information without the consent of his or her client or employer.
4. not undertake any assignment which may create a conflict of interest.
5. with his or her client or employer without a full knowledge of the client or employer.
6. present clearly to his or her clients or employers the consequences to be expected if his or her professional judgement is overruled by other authorities in matters pertaining to work for which he or she is professionally responsible.

Duties of the Professional Engineer or Geoscientist to the Profession

A professional engineer or geoscientist shall:

1. endeavor at all times to improve the competence, dignity and reputation of his or her profession.
2. conduct himself or herself towards other professional engineers and geoscientists with fairness and good faith.
3. not advertise his or her professional services in self-laudatory language or in any other manner derogatory to the dignity of the profession.
4. not attempt to supplant another engineer, or geoscientist in an engagement after definite steps have been taken toward the other's employment.

5. when in salaried position, engage in a private practice and offer or provide professional services to the public only with the consent of his or her employer and in compliance with all requirements of such practice.

6. not exert undue influence or offer, solicit or accept compensation for the purpose of affecting negotiations for an engagement.

7. not invite or submit proposals under conditions that constitute only price competition for professional services.

8. advise the Council of any practice by another member of the profession which he or she believes to be contrary to the Code of Ethics.