

University of
Waterloo



Report

of the

Task Force on Women in Engineering

**As a part of the
Vision 2010 Planning Exercise**

**In the
Faculty of Engineering**

Table of Contents

Executive Summary	3
1.Introduction	5
2. Mandate and Members	5
3. Women in Engineering	6
3.1 Women in Engineering at University of Waterloo	6
3.1.1 Women in Engineering at University of Waterloo - Undergraduate Students	6
3.1.2 Women in Engineering at University of Waterloo - Graduate Students	9
3.1.3 Women in Engineering at University of Waterloo - Faculty	12
3.2 Women in Engineering - Undergraduate Students in Canada	13
4. Review of Current Activities for Women in the Faculty of Engineering at University of Waterloo	15
4.1 Women in Engineering Committee	15
4.2 Women Undergraduate Students in the Faculty of Engineering at University of Waterloo	17
4.2.1 Admissions Office	17
4.2.2 Engineering Society	18
4.2.3 Graduating Class of 2005	18
4.3 Women Graduate Students in the Faculty of Engineering at University of Waterloo	19
4.4 Women Faculty in the Faculty of Engineering at University of Waterloo	20
4.5 UW/IBM K-12 Program	21
5. Observations and Recommendations	22
5.1 Observations (O) and Recommendations (R) - General (GE)	23
5.2 Observations (O) and Recommendations (R) - Women Undergraduate Students (US)	26
5.3 Observations (O) and Recommendations (R) - Women Graduate Students (GS)	26
5.4 Observations (O) and Recommendations (R) - Women Faculty (F)	27
Appendix 1 - Minutes of the Task Force Meetings	29
Appendix 2 - Women Enrolment in First Year Engineering Class at University of Waterloo	43
Appendix 3 - University of Waterloo WIE Committee - Examples of Past Activities	44
Appendix 4 - Grade 9 & 10 Girls Engineering Design Challenge 2002	45

	2
Appendix 5 - Letter of the University of Waterloo President	47
Appendix 6 - Lunch/ Discussion Meeting - Women Graduate Students	48
Appendix 7 - Letter inquiring about maternity/parental leave	54
Appendix 6 - Survey Engineering Undergraduate Class of 2005	55

Executive Summary

The Dean of the Faculty of Engineering mandated a review of issues related to Women in Engineering and to make recommendations to include in the Faculty of Engineering Vision 2010 Planning Exercise.

The task force consisted of:

Chair: Christine Moresoli (Chem Eng)
Secretary: Amy Resmer (DOE)
Ladan Tahvildari (ECE)
Bill Lennox (Civ Eng retired)
Toni Carlisle (Mechatronics)
Bernice Chan (Systems Design)
Leanne Whiteley (MAsc Civ Eng)
Lesley James (PhD Chem Eng)
Natasha Derbentseva (PhD MSci)
Devon Hutchinson (Marketing and Recruitment Co-ordinator)
Kim Boucher (Associate Director of Admissions)

The task force met regularly to (1) Review current activities/initiatives specific to women in the Faculty of Engineering, (2) Prepare and conduct an exit survey distributed to the graduating class of 2005, (3) Prepare and hold a lunch/discussion meeting for the women graduate students, (4) Meet with women faculty members. The findings of the task force are presented in this report.

Existing activities for Women in Engineering are coordinated essentially by the Women in Engineering Committee (WIE) and targeted to women undergraduate students and women faculty. EngSoc has some involvement in the activities for women undergraduate students. Women graduate students have received very little attention as no activities specifically targeted to them have been identified. A recently established outreach activity, UW/IBM K-12 program, organizes Information Technology workshops to local areas.

The existing activities for women in the Faculty of Engineering rely on the work and strong dedication and commitment of volunteers. This approach has reached its limits and will be quite difficult to sustain as the volunteers have significant pressure from their other commitments. In this context, the establishment of a full time staff position to handle issues of women is the highest priority recommendation.

A total of 16 recommendations are made:

-Five (5) general recommendations pertain to the operation and sustainability of the Women in Engineering Committee and their associated activities and to improve the use of external resources.

-Three (3) recommendations are specific to women undergraduate students and include the improvement of women undergraduate student recruitment and the sustainability and improvement of their activities.

-Four (4) recommendations are specific to women graduate students and include the improvement of the recruitment, the establishment of activities and the improvement of the information about maternity leave and childcare support.

-Four (4) recommendations are specific to women faculty and include the improvement of maternity leave and childcare support, have better communication of information about workload and improve the visibility of women faculty.

1. Introduction

As part of the Vision 2010, the Faculty of Engineering planning exercise, the Dean of Engineering has struck a task force to carry out a review of issues related to Women in Engineering and to make recommendations to include in the Faculty's plan for 2010. Three classes of clientele are distinguished:

- Women undergraduate students
- Women graduate students
- Women faculty

As the initial step, it was decided to gather information on the current situation for women in engineering both at Waterloo and at other institutions. If the information was unavailable, a strategy was developed to obtain pertinent information. Then using this information, the next step was dedicated to review the current situation for women in engineering. This information would enable the task force to formulate recommendations.

The task force met on 10 occasions to plan and discuss the strategy to be undertaken, the information that was collected and the formulation of recommendations. Minutes of these meetings are included in Appendix #1.

2. Mandate and Members

The mandate of this task force is to review women participation at all levels (undergrad, grad, and faculty), both current and prospective, by considering the University of Waterloo Engineering environment; identifying barriers to women as prospective and current students and faculty, and to make recommendations based on our findings.

The task force will focus on collecting the views and opinions of faculty members, then preparing a final report of recommendations for the Faculty Planning Committee.

The members of this task force are:

- Chair: Christine Moresoli (Chem Eng)
- Secretary: Amy Resmer (DOE)
- Ladan Tahvildari (ECE)
- Bill Lennox (Civ Eng retired)
- Toni Carlisle (Mechatronics)
- Bernice Chan (Systems Design)
- Leanne Whiteley (MASC Civ Eng)
- Lesley James (PhD Chem Eng)
- Natasha Derbentseva (PhD MSci)
- Devon Hutchinson (Marketing and Recruitment Co-ordinator)
- Kim Boucher (Associate Director of Admissions)

3. Women in Engineering

3.1 Women in Engineering at University of Waterloo

Some statistics on women enrolment, undergraduate, graduate (full time and part time), and faculty are presented in this section. The compiled data was collected from two main resources: i) the Canadian Council of Professional Engineers - Annual Survey of Engineering Schools, and ii) the Council of Ontario Deans of Engineering - Annual Survey. As indicated in Figure #1, the women representation in Engineering at Waterloo for all levels remains significantly lower than for the men. For the undergraduate and the graduate students the representation of women remained relatively constant at ~20% for the period considered, 1998 until 2004. Despite a recent increase for the women faculty, the women representation remains very low at 13.5% in 2004.

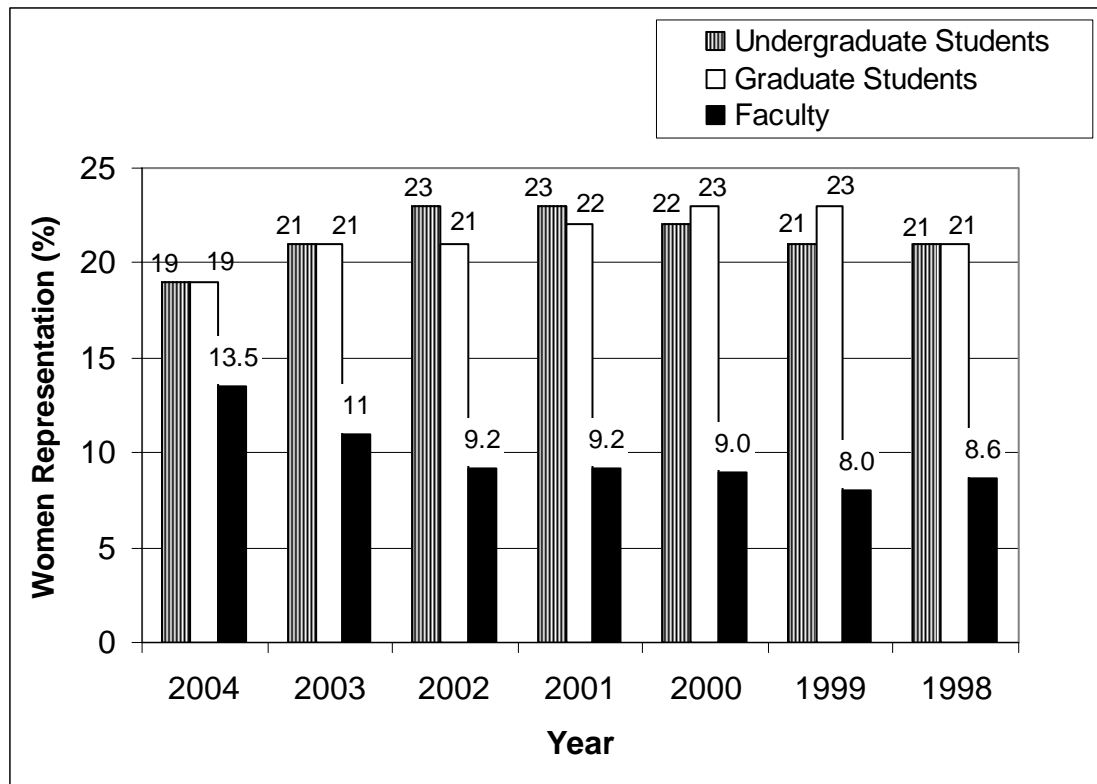


Figure #1: Women Representation in Engineering at University of Waterloo

3.1.1 Women in Engineering at University of Waterloo - Undergraduate Students

The women enrolment in first year engineering, remained relatively constant from 1998 (21%) to 2002 (23%) as presented in Figure #2 and Appendix 2. But a significant decrease was observed with 17% in 2003 and 13% in 2004. This significant and sudden decrease is of concern. A number of reasons have been formulated, the most important reason being the modification of the high school curriculum in Ontario.

The decrease in the women representation in first year engineering will have a delayed impact on the women representation for the undergraduate students as the first year enrolment represents a moderate fraction (~20%; in 2003 1,046 1st year students for a total of 3,860 students) of the total undergraduate enrolment.

Also, a wide range of women representation among the different disciplines is observed. A higher women representation exists for chemical, civil, environmental, geological and systems design, while computer, electrical, mechanical, mechatronics, and software attract fewer women. The creation of new programs may affect the women representation but this is beyond our control.

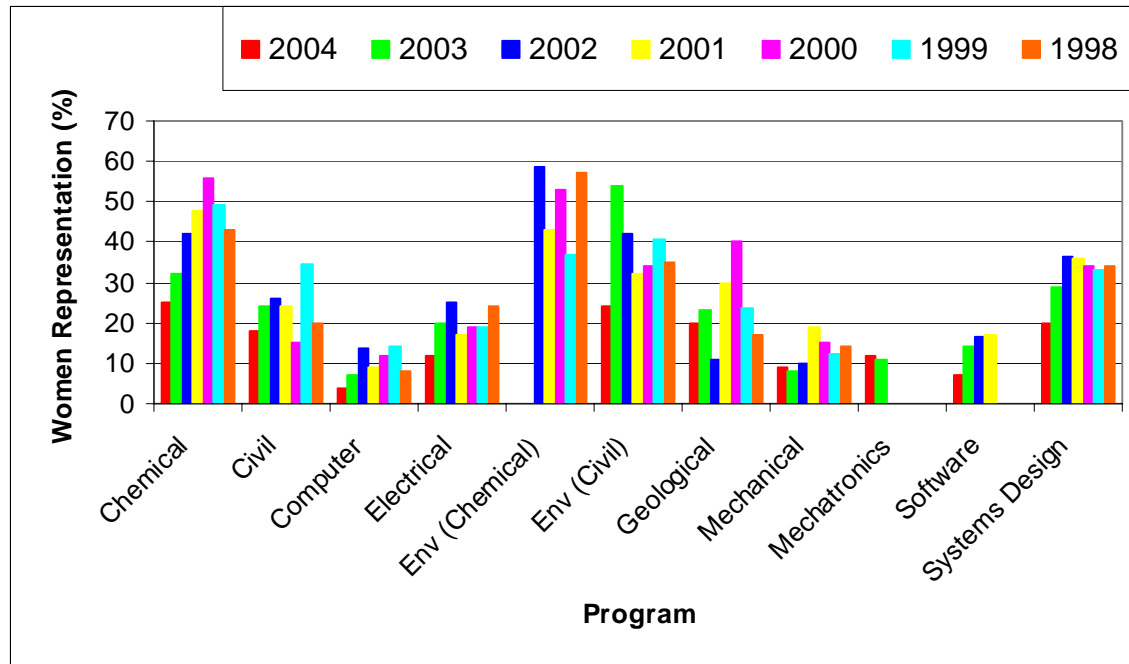
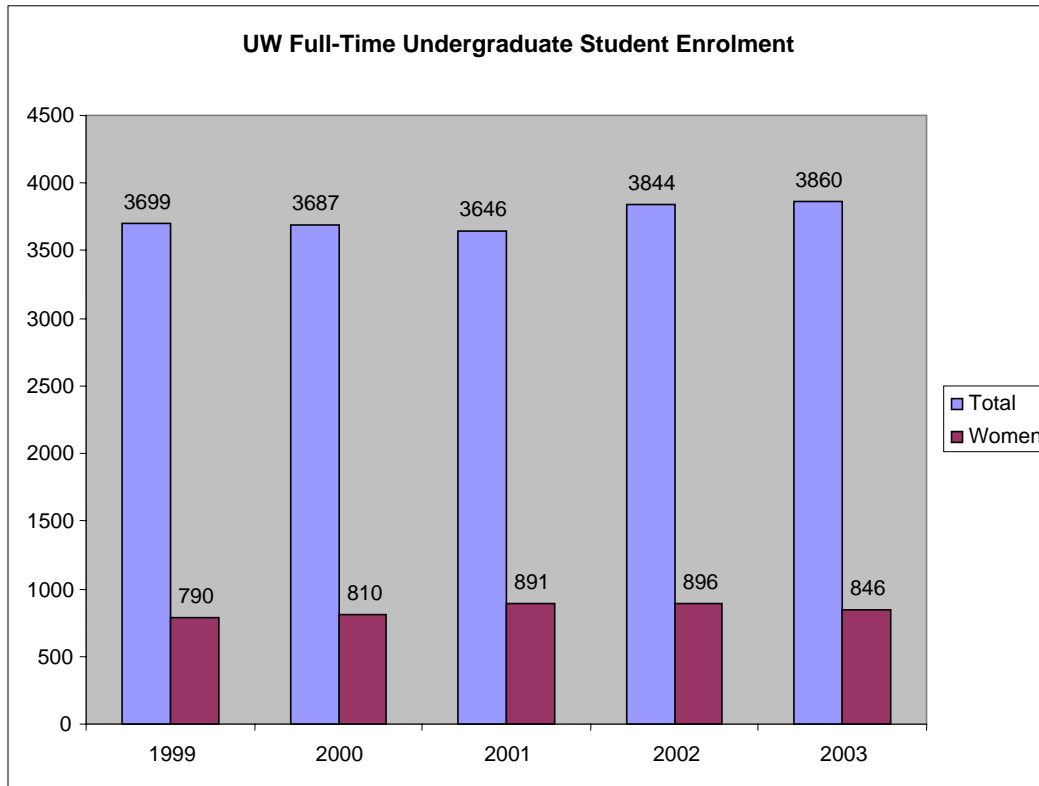


Figure #2: Women Enrolment in First Year Engineering Class at University of Waterloo (Details in Appendix 2)

The women enrolment, full-time undergraduate students at University of Waterloo, all years included is presented in Figure #3. The total number of women has increased from 1999 to 2001 and has remained constant from 2001 to 2003. But this increase was associated with a similar increase in the number of men student enrolment such that the relative women enrolment has remained relatively constant (Figure #3A). The women enrolment presented by program for the year 2003 (Figure #3B) provides insights into the programs that attract the most women and the relative importance of each program. The chemical program has the highest women representation (51.5%) but this program represents only 10.1% of the total student enrolment in engineering. The electrical and computer programs, representing 46.6% of the total student enrolment have a combined women representation, 17.9%.

A



B

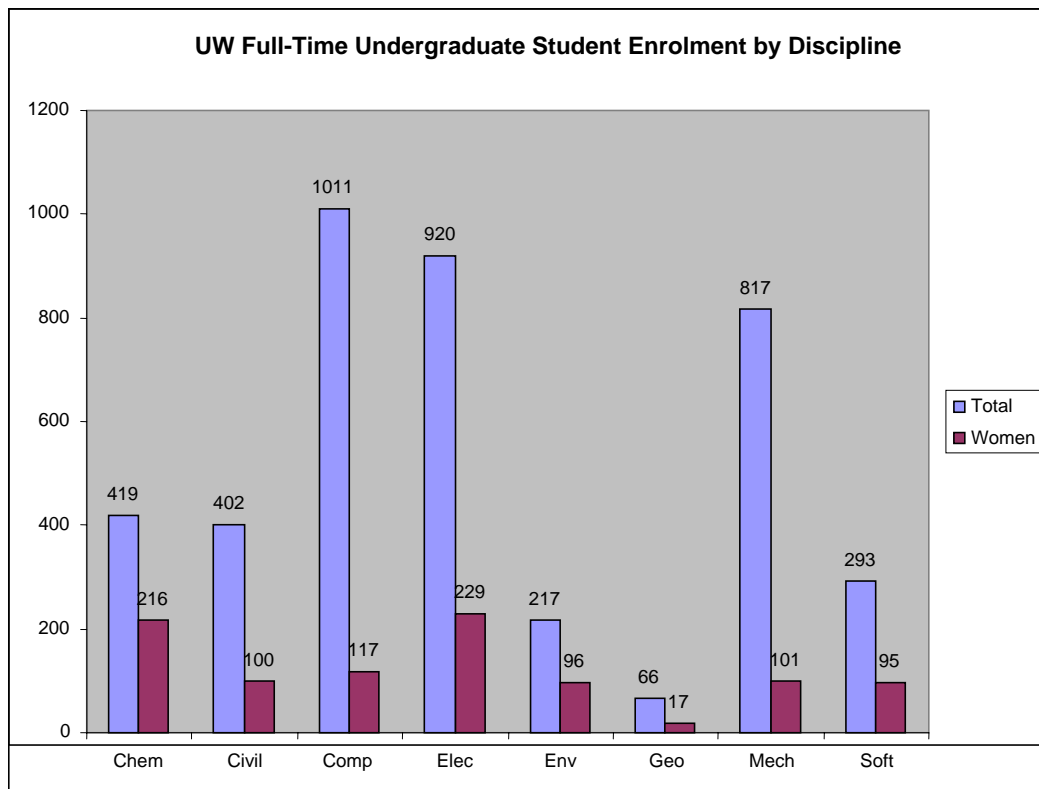
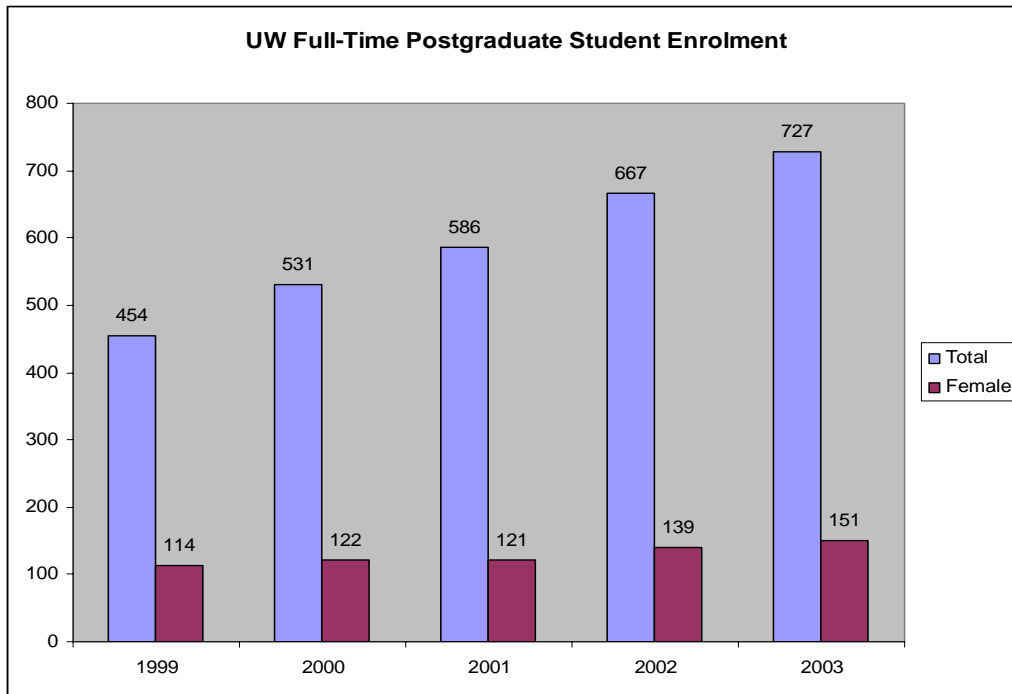


Figure #3: Undergraduate Student Enrolment in Engineering at University of Waterloo: (A) Year and (B) Program for the year 2003.

3.1.2 Women in Engineering at University of Waterloo - Graduate Students

The enrolment of women in the graduate programs is presented in Figure #4A according to year and in Figure #4B according to discipline for full time status. The enrolment for part-time students in graduate programs is presented in Figure #5A according to year and in Figure #5B according to discipline. Even though the number of women graduate students has increased from 1999 to 2003, the women representation remained relatively constant (Figures #4&5) since the number of men graduate students also increased. As was observed for the undergraduate students, the chemical discipline has the highest women representation, 29.4%, but the electrical discipline has the highest number of women students (59) resulting in a lower women representation, 18.3%. The distribution of total full graduate students, MSc and PhD, fluctuates significantly. In 2004, there were 366 total full time MSc students and 368 total full time PhD students compared to 2003 with 415 total full time MSc students and 308 total full time PhD students.

A



B

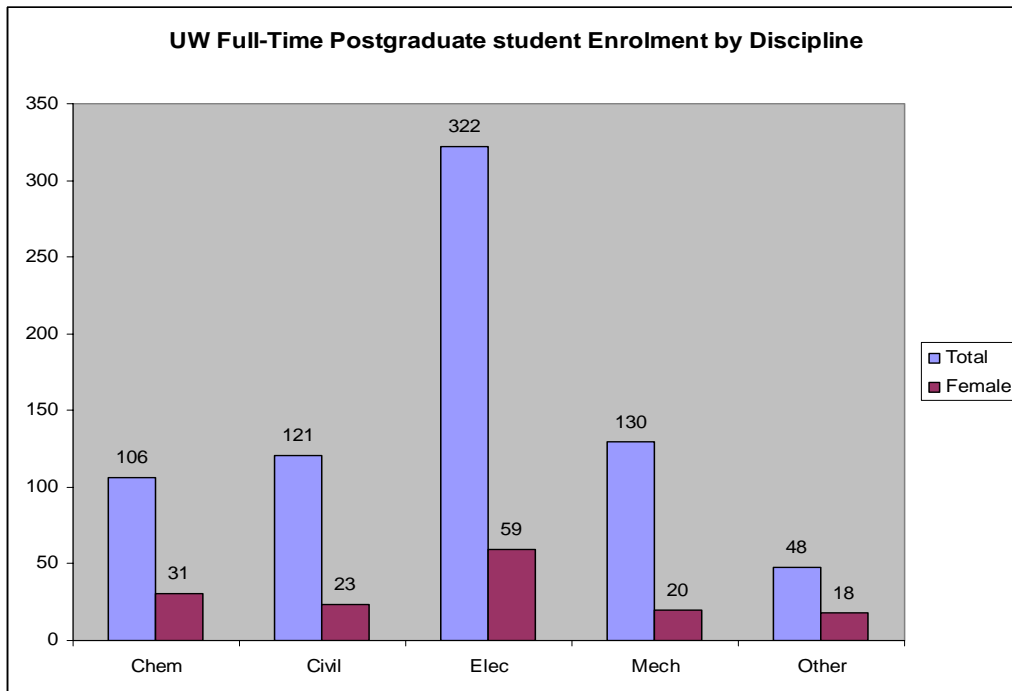
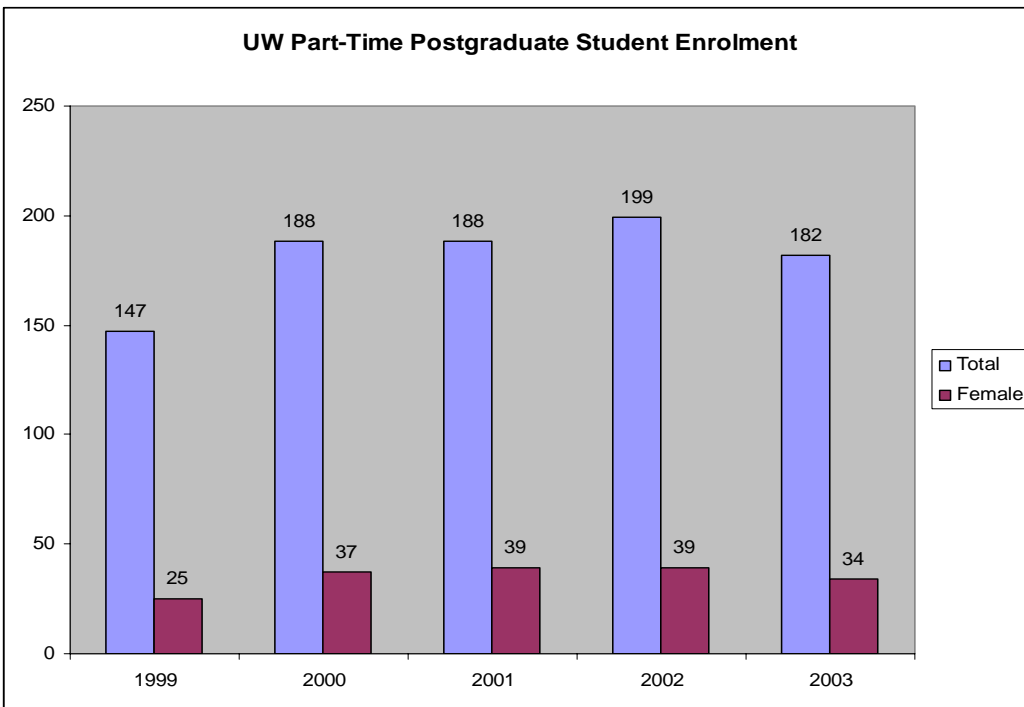


Figure #4: Full time Graduate Student Enrolment in Engineering at University of Waterloo - (A) Year and (B) Discipline for the year 2003.

A



B

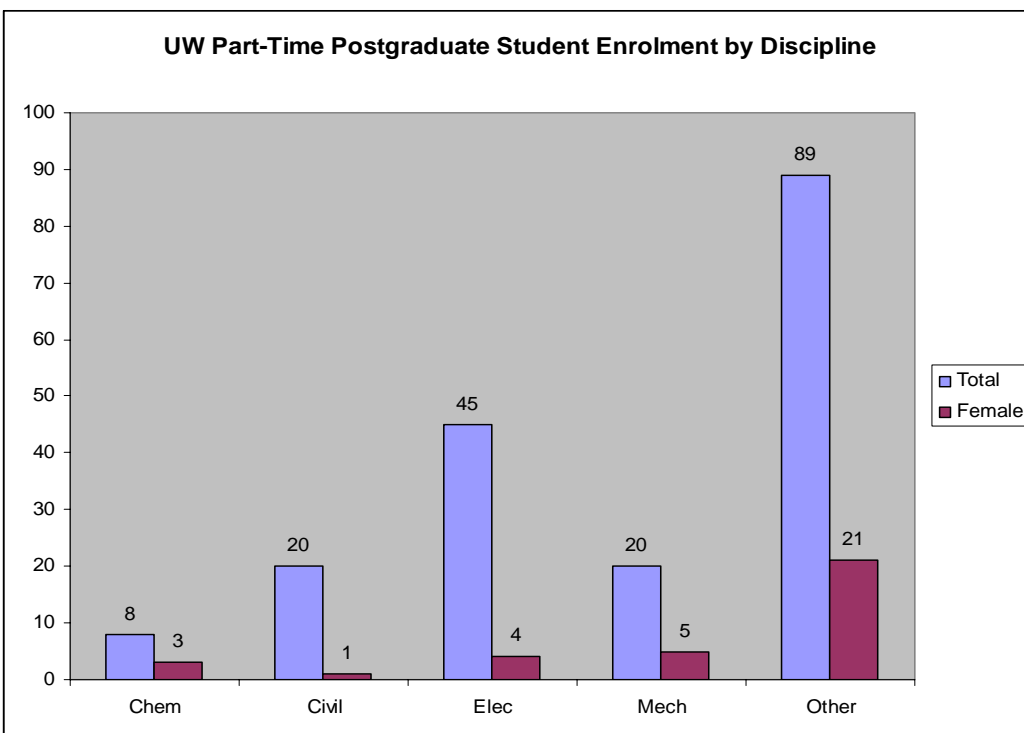


Figure #5: Part-time Graduate Student Enrolment in Engineering at University of Waterloo - (A) Year and (B) Discipline for the year 2003.

3.1.3 Women in Engineering at University of Waterloo - Faculty

The representation of women faculty according to their rank, presented in Figure #6, indicates a lower women representation for higher rank (Professor) compared to lower rank (Assistant Professor). This distribution reflects the recent hiring of many young women faculty.

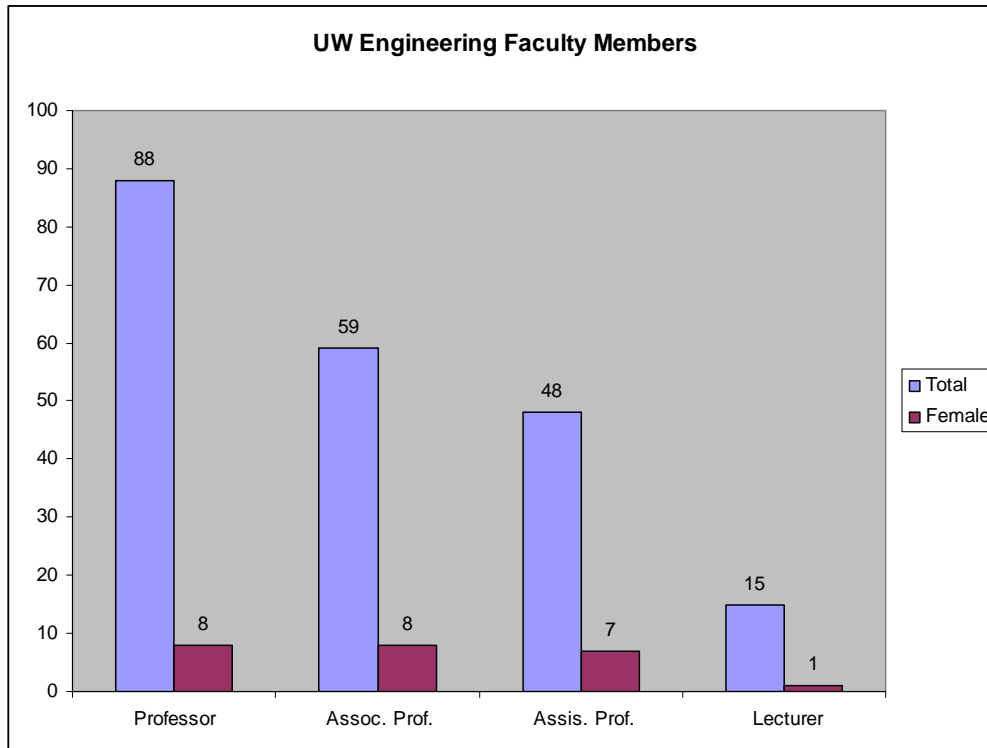
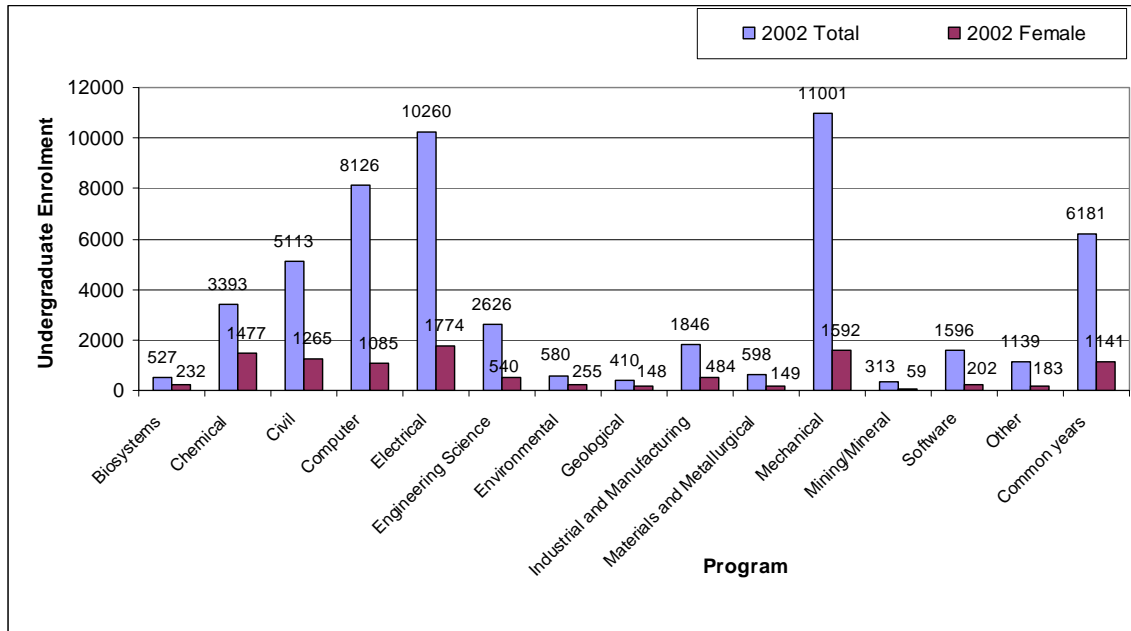


Figure #6: Women representation in Engineering at University of Waterloo for the year 2003- Faculty.

3.2 Women in Engineering - Undergraduate Students in Canada

Total and women full time undergraduate enrolment in accredited engineering programs in Canada for the year 2002 is presented in Figure #7A by discipline and in Figure #7B by selected Universities (CCPE).

A



B

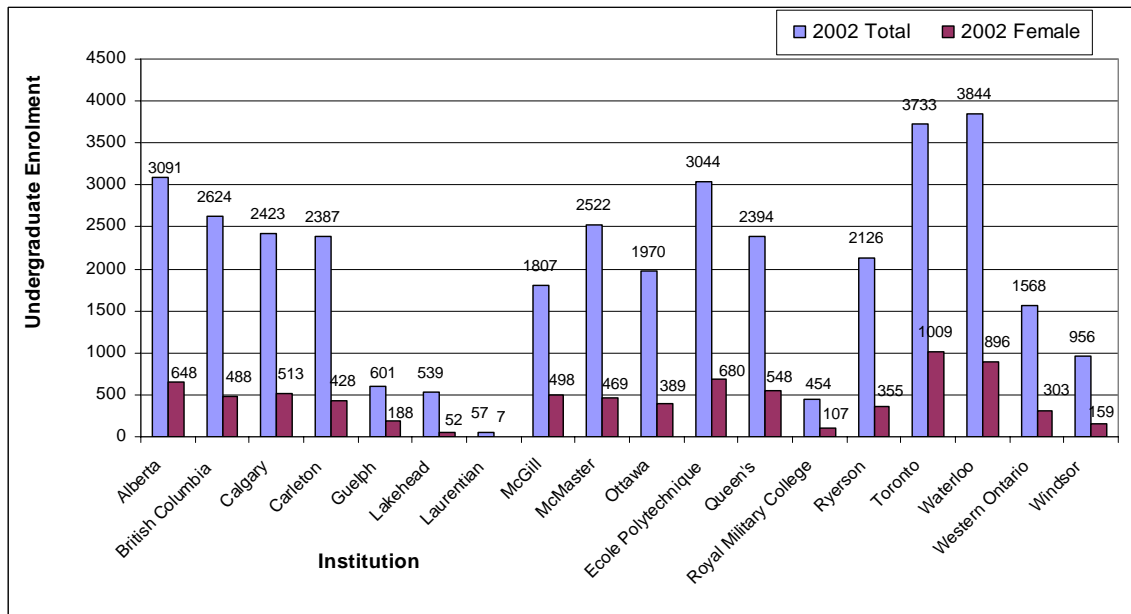


Figure #7: Total and women full time undergraduate enrolment in accredited engineering programs in Canada for the year 2002: (A): Discipline and (B) Selected Universities (CCPE).

The total and women (%) full-time undergraduate enrolment in accredited engineering programs for selected Canadian universities is presented in Table #1A and #1B. Both absolute enrolment and relative representation are important to consider in the analysis of the women enrolment in engineering programs. A program with a small enrolment can have a high women representation but such a program will have a small contribution to the overall women representation compared to a program with a large enrolment. This was illustrated earlier for the chemical discipline and the electrical and computer discipline at University of Waterloo.

Table #1A: Total and women (%) full-time undergraduate enrolment in accredited engineering programs for selected Canadian universities according to programs at University of Waterloo.

University	Chem		Civil		Comp		Elec		Env		Geo		Mech		Soft	
	total	F(%)	total	F(%)	total	F(%)	total	F(%)	total	F(%)	total	F (%)	total	F (%)	total	F (%)
Alberta	333	30.3	410	.	367	9.8	463	18.6					568	14.8		
British Columbia	192	40.1	360	22.8	261	13.8	295	15.6			73	19.2	389	11.8		
Calgary	219	44.3	247	29.1	170	9.4	297	17.5					376	18.1	121	14.9
Carleton			173	20.2	763	16.4	604	20.0	48	37.5			755	16.2		
Guelph					264	11.0			161	40.4						
Lakehead	29	27.6	113	10.0			183	8.2					131	5.3	41	7.3
Laurentian	4	50.0	7	1.0									8	0.0		
McGill	231	52.8	212	2.5	319	19.7	413	21.5					516	22.5		
McMaster	134	45.5	167	19.8	268	14.9	315	19.7					314	14.0	259	16.2
Ottawa	188	53.2	165	22.4	508	14.4	487	19.1					359	12.0	263	16.3
Polytechnique, Ecole	179	50.8	135	27.4	770	14.8	670	17.9			51	51.0	793	19.4		
Queen's	76	42.1	164	37.2	241	12.4	371	19.4			52	51.9	379	19.5		
Royal Military College	34	52.9	48	31.3	49	10.2	46	21.7					107	19.6		
Ryerson	173	41.6	242	17.4			744	15.3					410	6.3		
Toronto	357	53.2	301	27.6	852	17.3	547	23.4					465	18.9		
Waterloo	382	48.2	401	24.4	101	12.8	914	26.1	267	46.8	64	26.6	798	13.5		
Western Ontario	167	43.1	160	21.3	133	11.0	288	13.9					277	18.1	79	16.5
Windsor			45	31.1			226	15.5	15	66.7			229	12.7		

Table #1B: Total and women (%) full-time undergraduate enrolment in accredited engineering programs for selected Canadian universities according to programs at University of Waterloo.

University	Bio		Eng Sci		Ind/Man		Mat/Met		Min		Otherr		Com YR	
	total	F(%)	total	F(%)	total	F(%)	total	F(%)	total	F(%)	total	F(%)	total	F(%)
Alberta			77	13.0			87		48	20.8	98	17.3	640	20.9
British Columbia	4	50.0	193	15.0			138	13.0	63	9.5	75	17.3	581	20.5
Calgary					126	12.7					222	21.6	645	19.5
Carleton			44	15.9										
Guelph	176	5.0												
Lakehead											16.7			
Laurentian							8	37.5	30	3.3				
McGill	40	42.5					54	27.8	22	31.8				
McMaster			232	15.9	19	21.1	71	29.6					743	16.8
Ottawa														
Polytechnique, Ecole			174	21.3	228	39.0	34	32.4	10	10.0				
Queen's			365	26.3					50	32.0			696	20.1
Royal Military College													170	22.4
Ryerson					164	28.7					393	13.7		
Toronto			699	27.3	267	44.9	177	26.0	68	23.5				
Waterloo														
Western Ontario													430	17.7
Windsor					65		14						362	13.0

4. Review of Current Activities for Women in the Faculty of Engineering at University of Waterloo

The review of the current situation for women in the Faculty of Engineering consisted of contacting resource persons for a given activity/structure. For the undergraduate students at large, a survey was prepared and distributed to the graduating class (men and women) of 2005. For the women graduate students, a lunch/discussion meeting was organized. For the women faculty, the situation was analyzed through informal discussions with some of the women faculty and a potluck lunch.

The information that was gathered is presented in the following sections.

4.1 Women in Engineering Committee

Recommendations referring to this topic **GE1, B1-B7, C1, O1** are discussed in section #5.

The Women in Engineering (WIE) Committee in the Faculty of Engineering at Waterloo, was established in 1991 at the request of the Dean of Engineering. It is a Formal Standing Committee of Engineering Faculty Council. Its structure and current membership are presented in Table #2.

Table #2 Structure and Composition of the Women in Engineering Committee

Membership	Current Member
Faculty (2)	Ladan Tahvildari (ECE) Monica Emelko (Civ Eng)
Associate Dean of Engineering Undergraduate Studies	Wayne M. Loucks
Associate Director of Admissions	Kim Boucher
Non-Academic Staff Faculty of Engineering (1)	Debbie Collins (Sue Gooding)
Graduate Student (1)	Vacant
Directorships WIE EngSoc (2)	Appointment for one academic term
Alumni Faculty of Engineering (1)	Vacant
Dean of Engineering	Adel Sedra
Chair of Council	Peter Douglas

The WIE Committee has been the mechanism in the Faculty for women related issues. But the WIE Committee has met challenges in the fulfilment of its goals as it relies on the availability of its members and operates with minimal administrative support. The mission of the WIE committee is to:

- Review and monitor existing policies and practices
- Improve visibility and exposure within constraints
- Work with other groups on campus and elsewhere
- Make recommendations as necessary to Council and to Dean of Engineering
- Report annually to Council/Dean of Engineering
 - Admission
 - Learning
 - Teaching
 - Research
 - General working environment at UW

A website presents information on the WIE committee (<http://www.eng.uwaterloo.ca/~w-in-eng>). This web site is maintained by the Dean's office under the direction of the WIE Chairs.

Over the years, the WIE Committee has organized a number of activities. The number and type of activities vary according to the availability of the WIE committee members and the available volunteers. A list of past events is presented in Appendix #3. Some of these activities have been in collaboration with EngSoc and targeted to the students (see section 4.2.2 for details).

The WIE Committee has also been involved with outreach activities (Day with a Difference, ESQ, etc).

In 2002, an Engineering Design Challenge for Grade 9/10 Girls was planned under the leadership of Kim Boucher but the activity was cancelled at the last minute due to the unavailability of the participating high schools (Appendix #4).

The WIE Committee interacts from time to time with the Engineering Faculty Alumni Office (recruitment of speakers) and with external organizations (CCPE, PEO, etc).

Recently, the WIE committee has been involved in the creation (February 2005) of ONWiE (Ontario Network for Women in Engineering). The goal of ONWiE is a substantive change in participation of women in engineering in Ontario Faculties/Schools of Engineering by 2010. As a first activity, an All Ontario All Girls Event, GO ENG Girl, is being organized for October 15, 2005 across Ontario with University of Waterloo as organizer of this activity for the region (Ladan Tahvildari).

The WIE Committee, through the financial support of the Dean of Engineering and the Dean of Science, joined MentorNet (www.MentorNet.net) in November 2003, an E-Mentoring Network for Women in Engineering and Science, a non-profit e-mentoring program to link women in engineering and related sciences from universities, governmental organizations, industry, etc.

The WIE committee also prepared a brochure that presents a profile of all the women faculty in engineering. This brochure is intended for distribution at the various WIE activities, for posting on the WIE website, available at the visitors centre and from Debbie Collins.

A package for teacher-advisor program (grade 9/10) to provide guidance to teachers who are not familiar with engineering was prepared.

Also, a poster for campus day and other open houses featuring women faculty, grad and undergraduate students was prepared.

Recently, contacts have been established by Ladan Tahvildari with IEEE to create a WIE affiliated group at University of Waterloo.

4.2 Women Undergraduate Students in the Faculty of Engineering at University of Waterloo

Recommendations on this topic, **R-GE1A, R-GE3A, R-US1A-c, R-US2A and R-US3A** are discussed in section 5.

4.2.1 Admissions Office

The admissions' office through the initiative and coordination of Kim Boucher, Associate Director, arranges every spring phone calls to prospective women students who have received an acceptance letter from UW. Phone calls are done by current women undergraduate students.

Currently, there is no recruitment specifically targeted at women students.

In 2005, the President sent a letter to all women students who had received an offer letter to an Engineering program at Waterloo (Appendix #5).

4.2.2 Engineering Society

The Engineering Society (Eng Soc) is expected to organize activities in collaboration with the WIE Committee. These activities, generally targeted to undergraduate students, involve the following:

- Dean responsible for food and refreshments of 1 event
- EngSoc responsible for gifts
- Typical budget: \$200/term

But a number of issues associated with the Eng Soc WIE activities exist and include:

- Lack of communication between Eng Soc and the WIE Committee.
- Significant variation in the organization of events according to who are the Eng Soc WIE Directors.
- Very limited continuity between the activities organized.
- Short duration of the Eng Soc WIE Directors position (only one term).

Also, student delegates, chosen by Eng Soc (VP External), have attended the annual Conference on WIE held at Queen's University (cost covered by the Dean of Engineering).

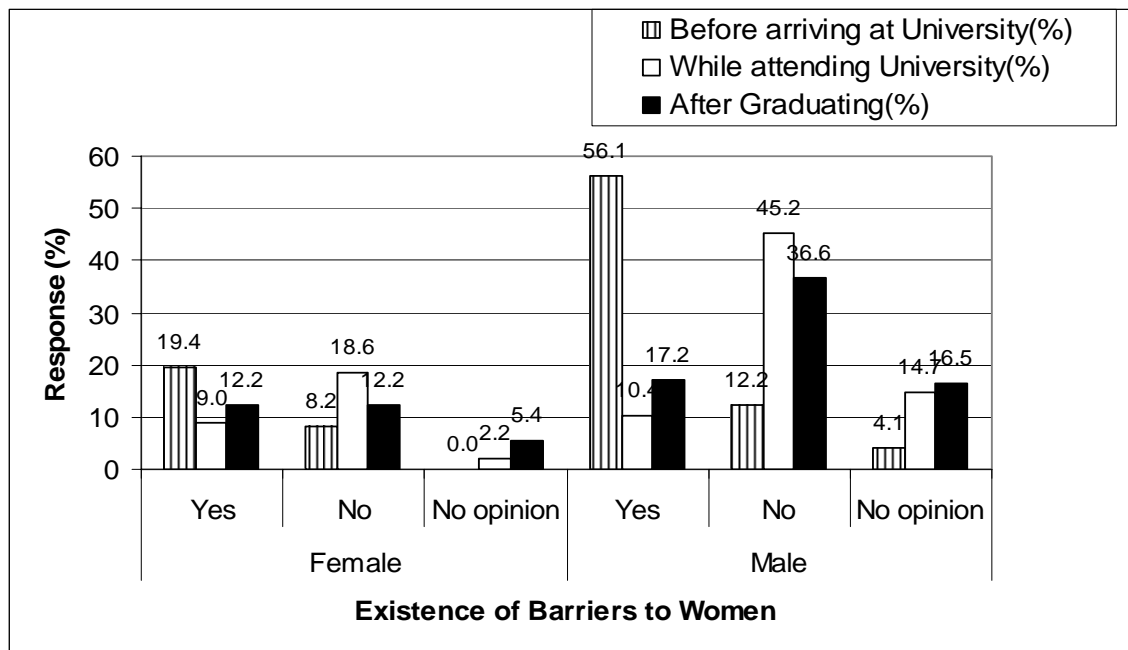
4.2.3 Graduating Class of 2005

A survey of the graduating class of 2005 was conducted to obtain complementary information on potential issues faced by the students who have spent 5 years at Waterloo. The survey prepared by the Task Force committee had received ethics approval (Appendix #8). It was decided to distribute the questionnaire to both men and women in order to obtain a comparison between genders. The questionnaire was distributed to the 2005 graduating class at the end of the winter term 2005. In total, 279 questionnaires were collected (83 women and 196 men) from a total theoretical number of 722 (162 women and 560 men). The distribution of completed questionnaires by department is presented in Table #3. Details of the survey results can be found in Appendix #8. An example of the information obtained from the completed questionnaires is presented in Figure #8 for the question pertaining to whether or not there are barriers to women in engineering (1) before arriving at University, (2) while attending University and (3) after Graduating (Appendix #6 for details). A significant shift is observed for the perception of barriers before and while at University which indicates that there is still a lot of work needed to modify the perception of potential barriers before entering University. Due to time constraints the task force was unable to analyse all of the information contained in the survey about the following items:

- Age when they decide to be an engineer.
- The quality of advice that they received regarding engineering as a career prior to entering university.
- The quality of their experience at University of Waterloo.
- Suggestions for improvements to enhance the overall environment for women at University of Waterloo and to attract more women into Engineering.
- Information that they wish they knew before coming to Engineering at UWaterloo.

Table #3: Completed Survey Graduating Class of 2005

Department	Women	Male	Total
Chemical	27	23	50
Civil	17	29	46
ECE	22	75	97
Mechanical	11	60	71
Systems Design	6	9	15
Grand TOTAL	83	196	279

**Figure #8: Response of the Graduating Class of 2005 to the question on the existence of barriers to women in engineering.**

4.3 Women Graduate Students in the Faculty of Engineering at University of Waterloo

Recommendations on this topic, **R-GE1A**, **R-GS1A**, **R-GS2A**, **R-GS3A-B** and **R-GS4A**, are discussed in section 5.

The task force at the beginning of the review process realized that no information was available on the situation of women graduate students. Upon this observation, the task force committee decided to invite women graduate students to a lunch / small group discussion activity sponsored by the Dean's office and held on April 28, 2005 in the Festival Room, South Campus Hall. This lunch meeting provided an opportunity for over 35 women graduate students from all Engineering departments to meet, mingle and participate in small group discussions on targeted issues (presented in Table #4). The small group discussion consisted of 4-8 women with one person that was responsible for taking notes. This activity was very much appreciated by all attendees as this was the first activity ever organized

specifically for women graduate students. Details of the lunch discussion can be found in Appendix #6.

The information gathered during the small group discussions provided the basis for analyzing current issues and the formulation of recommendations.

Also, an attempt was made to obtain information on the situation at other universities for maternity/parental leave and childcare for women graduate students. An email message was sent to 5 universities but unfortunately, no information has yet been received (Appendix #7).

Table #4 Women Graduate Students Small Group Discussion Questions

What attracted you to Graduate Studies in Engineering ? (Speak from personal or observed experience. Give specific examples, whenever possible.)
Do you know women who <u>considered</u> Graduate Studies in Engineering but did not enroll? Why not? What might have influenced them to choose graduate studies in engineering (Please do not provide names)?
Do you know women who <u>did not consider</u> Graduate Studies in Engineering as an option but you think should have? What might have helped them consider graduate studies in engineering more favorably(Please do not provide names)?
What opportunities, if any are overlooked in attracting women to graduate studies in engineering?
What could the Faculty of Engineering do to make your experience at University of Waterloo more enjoyable?

4.4 Women Faculty in the Faculty of Engineering at University of Waterloo

Recommendations on this topic, **R-GE1A, R-F1A-B, R-F2A-B, R-F3A and R-F4A**, are discussed in section 5.

The women faculty in Engineering have been active through the WIE committee since its establishment in 1991. A proposal for an NSERC Chair in Women in Engineering at University of Waterloo (1997, 2002) was prepared but was unsuccessful. In 2004, the WIE committee had their first activity specifically for women faculty, a meet and mingle gathering (July 28, 2004) that was extremely successful and well attended. It provided the first opportunity for women faculty to meet and gave rise to the idea of having monthly informal lunch. The first of the monthly lunch was an invitation by the Dean of engineering for a lunch at Sole Restaurant. Subsequent lunches, included a potluck in December 2004 and a potluck in April 2005.

The potluck lunch of April 2005 provided an opportunity to discuss issues for women faculty. Issues included:

- providing information about maternity leave, parental leave and daycare facilities during and after the hiring process.
- providing information about the workload.
- balancing women representation on committees and women commitment to committee work.
- requesting realistic service duties from junior Faculty

Also, the women faculty with the help of the Dean of Engineering office have prepared a brochure outlining the research profiles of each women faculty.

4.5 UW/IBM K-12 Program

Recommendations on this topic, **R-GE3A-B**, are discussed in section 5.1

The UW/IBM K-12 program is a very recent outreach initiative that began informally in October 2003 and received Chapter status in March 2004. The UW/IBM K-12 program originates from the 1st Women in Technology (WIT) Conference held in Toronto in November 1998 where it was decided to organize information technology (IT) workshops for grade 7/8 women students as target audience.

The main responsibility of the chapter is the organization of IT workshops. A chapter has a leader and facilitators. The responsibilities of the chapter leader are:

- the recruitment of facilitators
- the conduct of training sessions for facilitators
- the maintenance of a volunteer database
- the communications with the local schools, libraries to setup possible workshops
- keeping track of the names of the schools visited and the number of students reached
- the liaison between IBM and university

Leanne Whiteley, civil engineering graduate student, is the chapter leader since March 2004.

The facilitators are volunteers, primarily undergraduate students recruited through EngSoc. Some facilitators are recruited as requests through WIE website and/or email or through the IBM K-12 mailing list (yahoo groups).

The resources available to the UW Chapter consist of IBM for promotional material and the loan of laptops, the Faculty of Engineering also for the loan of laptops and the WIE Committee for the training session/Appreciation dinner. The loan of laptops has been an issue recently.

A workshop will consist of:

- Facilitator introductions and the presentation of their engineering discipline, interesting projects and/or co-op terms
- Tech talk/presentation/discussion focusing on Engineering
- Internet safety
- Netscape Composer web tutorial
- Hands-on workshop (done in groups)
 - Pre-determined themes and groups
 - Clipart folders prepared ahead of time for each group/theme
- Website presentations

Since the creation of the UW Chapter, 4 workshops were organized that targeted different audiences, recruitment and advertising approach as presented in Table #5. Currently the Chapter does not have a web site of its own. A website for the chapter and program would be useful as it would enable the dissemination of information on the past and future workshops, links to the UW WIE Website and the websites from workshops.

Also, as the chapter is the responsibility of volunteers, there are limitations due to the time commitment of these people and this may cause discontinuity in the chapter's activities.

Table #5: List of workshops organized by the UW/IBM K-12 Program

Location (date)	Audience	Number of Participants
St. Monica House (Spring 2004)	Pre- and post-natal teens	12 students (ages 13-21)
Centennial Public School (Spring 2004)	Grade 7/8 enriched class	23 students (boys and girls)
Waterloo Public Library (Fall 2004)	Targeted grade 7/8 students	Poor turnout
Local Girl Guide Group (Winter 2005)	Girls age 9-15	- 23 Girl Guides (age 9-11) - 2 Pathfinders (age 12-15)
Waterloo Public Library (planned Spring 2005)	-Weekend workshop -Increase advertising through library	

5. Observations and Recommendations

In this section, observations of the current situation on issues for women in engineering are presented and recommendations are formulated. Observations (O) and recommendations (R) are grouped as:

- (1) General (GE)- applying to all women in the Faculty of Engineering
- (2) Women Undergraduate Students (US)
- (3) Women Graduate Students (GS)
- (4) Women Faculty (F)

Recommendations are distinguished according to their priority: HP (high priority) and MP (medium priority).

An overview of the observations and recommendations that will be discussed in this section is presented in Table #6.

Table #6 Summary of the observations (O), recommendations (R) and priorities.

Observation (O)	Recommendation (R)	Priority*
General (GE)		
O-GE1- Initiatives/ Activities for women in the Faculty of Engineering	R-GE1A- Hiring of a full time staff member	HP
O-GE2- WIE Committee	R-GE2A to R-GE2G- Operation and sustainability	HP
O-GE3- Activities with the external population	R-GE3A to R-GE3C- Operation and sustainability	HP
O-GE4- List of WIE emails	R-GE4A- Improvement of the use of the list	MP
O-GE5- External resources	R-GE5A- Improvement of the interactions	MP
Women Undergraduate Students (US)		
O-US1- Recruitment targeted specifically to women	R-US1A to R-US1C- Improvement of the recruitment	HP
O-US2- Activities for women undergraduate students	R-US2A- Improvement and sustainability of activities	MP
O-US3- Engineering Society	R-US3A- Sustainability and dissemination of various activities	HP
Women Graduate Students (GS)		
O-GS1- Recruitment of women graduate students	R-GS1A- Improvement of the recruitment	HP
O-GS2- Activities for women graduate students	R-GS2A- Improvement and sustainability of activities	HP
O-GS3- Information about maternity leave and childcare support	R-GS3A to R-GS3B- Better communication of information	HP
O-GS4- Daycare bursary procedure	R-GS4A- Improvement of the situation	HP
Women Faculty (F)		
O-F1- Information about maternity leave, parental leave and daycare facilities	R-F1A- Improvement of the situation	HP
O-F2- Information about the workload	R-F2A to R-F2B- Better communication	HP
O-F3- Activities for women faculty and their families	R-F3A- Improvement and sustainability of activities	MP
O-F4- Visibility of women faculty	R-F4A- Improvement of the visibility of women faculty	HP

* HP: High Priority MP: Medium Priority

5.1 Observations (O) and Recommendations (R) - General (GE)

Observation O-GE1- In general, the Faculty is active in women in engineering initiatives/activities at all levels. But most of these initiatives/activities rely on the commitment of individuals who have other commitments and responsibilities and achieve these initiatives with minimal administrative support. Also, there is a lack of coordination between the initiatives/activities. Finally the use of the resources is not optimal.

Recommendation R-GE1A (HP)- Create a full time staff position with the following responsibilities:

- 1- Coordinate and support women initiatives current and proposed of the different groups in the Faculty.
- 2- Provide a more efficient utilization of the current resources and continuity with the activities/initiatives.
- 3- Improve the communication among the different groups (WIE Committee, Eng Soc, UW/IBM K-12 Program, current undergraduate students, graduate students and Faculty).

- 4- Update, maintain the WIE web site and increase its exposure and visibility.
- 5- Maintain the list of WIE emails (see O-GE4)
- 6- Supervise WIE co-op student.
- 7- Coordinate communication and activities with external resources (Alumni, Universities, PEO, ONWiE, Women in Science and Engineering (WISE) and other WIE groups and technical societies).
- 8- Maintain database of:
 1. volunteers (created in UW/IBM K12 program)
 2. Potential speakers (Faculty, Alumni, etc)
- 9- Compile a list of scholarships/awards for women (Ex: NRC, CEMF) and encourage women to apply.
- 10- Identify potential candidates for awards, record and communicate their achievements.
- 11- Encourage women to participate in the Center for Advanced Studies Conference sponsored by IBM.
- 12 Continue to monitor and collect data and prepare statistics on the women representation in the Faculty.

Observation O-GE2- WIE Committee is the group who has been established to lead the initiatives/activities in the Faculty but the WIE Committee has encountered challenges in fulfilling this mandate.

Recommendation R-GE2A (HP)- Improve the consistency and sustainability in the WIE Committee activities by having regular meetings (at least the faculty members, staff, and student representative) throughout the year. It is proposed to have 3 meetings per year (near the beginning of each term).

Recommendation R-GE2B (HP)- Maintain the hiring of WIE co-op students as they are beneficial to accomplish well defined tasks.

Recommendation R-GE2C (HP) – Improve the communications with EngSoc. For example, each term meet with the Eng Soc WIE Directors, discuss their objectives for the term and explain the structure of the WIE committee.

Recommendation R-GE2D (HP) – Facilitate the work of one of the WIE Faculty co-chair by providing a teaching relief to this person.

Recommendation R-GE2E (HP)- Ensure that there is representation and participation of graduate students on the WIE Committee by filling the position of the representative of the women graduate students.

Recommendation R-GE2F (HP)- Improve the visibility and accessibility of the WIE web site.

Recommendation R-GE2G (HP)– Invite any student (s) recipient of the Canadian Engineering Memorial Foundation (CEMF) award to join the WIE committee.

Observation O-GE3- The current activities of the Faculty of Engineering with the external population are quite limited. Only one structured external activity has been identified, UW/IBM K12 Program. This program is very recent and Waterloo gained Chapter status in 2004. The program has been quite active in having organized 4 Information Technology workshops.

Recommendation R-GE3A (HP)- Develop a strategic plan, in direct coordination with the Recruitment and Marketing Coordinator of Engineering, for external activities (objectives, target audience, expected results...) and the proposed staff person (see R-GE1A), their advertisement and secure the resources. Proposed activities to be further investigated include:

1. Event: sleepover, with Junk Yard wars, and stay in residence. Possibly making a web site as well and use current student volunteers to assist.
2. Women Shadow Day! Get high school students to follow a student half day and a PEng half day.
3. Seminars for grade 9-10 high school women such as those organized by the computer science department at UW (http://www.cs.uwaterloo.ca/liaison/girls/girls_overview.shtml).
4. Campus Day.
5. National Engineering Week (www.engineeringweek.on.ca).

Recommendation R-GE3B (HP) – Provide support to set-up and maintain the UW/IBM K12 Chapter web site with:

- link to UW WIE website
- websites for workshops
- past workshop information (School name)
- future workshop information

Recommendation R-GE3C (HP) – Maintain continuity in the UW/IBM K12 program activities by selecting a graduate student as Chapter Leader.

Observation O-GE4- A list of WIE emails currently exists that has been set up through yahoo groups and is used to advertise WIE events.

Recommendation R-GE4A (MP)- Improve the use of this list for uses such as:

- (1) Invite Faculty, staff, and graduate students to join this list to find out about upcoming WIE events or provide suggestions for speakers.
- (2) Advertise scholarships specific to women.
- (3) Recruit volunteers for some of the outreach programs/initiatives.

Observation O-GE5 – Very limited use of external resources (Alumni, Universities, PEO, ONWiE (Ontario Women in Engineering Network), Women in Science and Engineering (WISE) and other WIE groups and technical societies) has been identified. UWaterloo membership to ONWiE is an invaluable source of contacts, representatives from all Ontario Engineering Universities.

Recommendation R-GE5A (MP) – Pursue existing contacts and establish new contacts with external resources to increase our resources, learn from successful achievements on women issues and increase our outreach opportunities for collaborations.

5.2 Observations (O) and Recommendations (R) - Women Undergraduate Students (US)

Observation O-US1- Currently, there is no recruitment specifically targeted at women students. Every spring, Kim Boucher coordinates phone calls to prospective women students who have received an acceptance letter from UWaterloo. Phone calls are done by current women undergraduate students.

Recommendation R-US1A (HP) – Develop a strategic plan, in direct coordination with the Recruitment and Marketing Coordinator of Engineering and the specific departments, for the recruitment targeted at women and for the preparation of information tools (brochure, video, CD, posters...) for various audiences explaining the different engineering disciplines, careers and highlighting that engineering benefits society. Suggested target audiences include:

- (1) Counsellors, teachers and librarians
- (2) Elementary and younger high school kids

Recommendation R-US1B (HP) - Monitor the women admission process and success: how many apply, how many get admitted, how many choose to come and how many pass first year.

Recommendation R-US1C (HP)- Analyse in detail the results of the survey for the graduating class of 2005 that was generated by this task Force.

Observation O-US2- Currently, there are very few activities aimed specifically at women undergraduate students.

Recommendation RUS2A (MP)- Develop a strategic plan, in direct coordination with the proposed staff person (RecA1), the departments, the WIE Committee and Eng Soc, for the organization of activities for women that may be department specific or faculty wide. Proposed activities to be further investigated have been mentioned in the Survey Graduating class of 2005.

Observation O-US3- Eng Soc has been involved with the organization of events that varies according to the Eng Soc WIE Directors. Student delegates have attended the annual Conference on WIE held at Queen's University (cost covered by the Dean of Engineering).

Recommendation R-US3A (HP) -Establish a track record of the various activities through the preparation of a short summary:

- (1) after each event by the WIE Director to be posted on the WIE website.
- (2) by the delegates that have attended the Conference on WIE held at Queen's University.

5.3 Observations (O) and Recommendations (R) - Women Graduate Students (GS)

Observation O-GS1- The recruitment of graduate students is coordinated through each individual department. Also, there is no recruitment specifically targeted to women and the information on the benefits of a graduate degree does not appear to be well known by the women graduate students prior to entering graduate school.

Recommendation R-GS1A (HP)- Develop a strategic plan in direct coordination with each department and the proposed staff member (R-GE1A) for the development of a strategy that may be department

specific or faculty wide for the recruitment of women graduate students and the preparation of information tools about ongoing research, research possibilities and financial support targeted to 3rd and 4th year undergraduate students.

Observation O-GS2- Currently in the Faculty of Engineering, no activity specifically targeted to women graduate students, both current and prospective, was identified.

Recommendation R-GS2A (HP)- Develop a strategic plan, in direct coordination with the proposed staff person (see R-GE1A), the departments and the WIE Committee, for the organization of activities that may be department specific or faculty wide. Proposed activities to be further investigated include:

- Information sessions about jobs with a Master's, PhD degree.
- Social events for women graduate students across departments.
- Technical presentations.

Observation O-GS3- It appears that the women graduate students have very limited knowledge about maternity leave and childcare support. Also, the information available on the web, Guidelines on Maternity, Adoption and Parental Leave (<http://www.grad.uwaterloo.ca/students/GSOmatguide.asp>) was last updated in January 1995.

Recommendation R-GS3A (HP)- Improve the communication about maternity leave and childcare support offered by developing information packages in collaboration with the proposed staff member (see R-GE1A).

Recommendation R-GS3B (HP)- Update the Guidelines on Maternity, Adoption and Parental Leave.

Observation O-GS4- The rules for applying to a daycare bursary have recently changed and are more complex. The bursary is no longer provided by the Faculty of Engineering. Women Graduate students now have to apply through GSO which makes it more difficult to obtain the bursary as this includes all the faculties. Also, to be eligible for this bursary, the applicant needs to apply first for assistance through the Regional Day Care Subsidy Program.

Recommendation R-GS4A (HP)- Investigate why the changes have happened and how to improve the new situation.

5.4 Observations (O) and Recommendations (R) - Women Faculty (F)

Observation O-F1- Information about maternity leave, parental leave and daycare facilities during and after the hiring process may not be communicated in an optimal manner and uniformly across all departments.

Recommendation R-F1A (HP)- Review and analyze the current maternity leave, parental leave and access to daycare facilities at Waterloo and compare with other Canadian Universities. Finally make appropriate adjustments to improve the current situation.

Recommendation R-F1B (HP)- Establish a Faculty wide mechanism to ensure that all women faculty are informed about maternity leave and daycare facilities during and after the hiring process. This mechanism could be coordinated by the proposed staff member (RecA1).

Observation O-F2- Information about the workload and expectations may be unclear to women faculty.

Recommendation R-F2A (HP)- Establish a Faculty wide mechanism to ensure that all women faculty are informed about workload and expectations.

Recommendation R-F2B (HP)- Establish a Faculty wide mechanism to ensure that junior women faculty are requested realistic service load.

Observation O-F3- Very limited activities specifically targeted to women Faculty were identified.

Recommendation R-F3A (MP)- Develop a strategic plan in direct coordination with the proposed staff member (see R-GE1A), the departments and the WIE Committee for the organization of activities. Proposed activities to be further investigated include:

- Seminars by women speakers.
- Social events for families across departments

Observation O-F4- Very little visibility and promotion of women Faculty exist.

Recommendation R-F4A (HP)-Increase the visibility through the creation of a women in engineering Chair at University of Waterloo. Examples of chair structure to be considered are the NSERC Chair in Women in Engineering, Queen's University Dupont Chair in Engineering Education Research and Development (http://appsci.quennsu.ca/ilc/development/Caroline_Baillie.php).

Appendix 1 - Minutes of the Task Force Meetings

Faculty of Engineering Task Force on Women in Engineering Decision/Action Statement

Wednesday, March 9th, 2005
4:00 p.m. – E2 3324

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Kim Boucher, Bernice Chan, Natasha Derbentseva, Lesley James, Bill Lennox, Ladan Tahvildari, Leanne Whiteley

Absent: Toni Carlisle, Devon Hutchinson

I Welcome and Overview of the Task Force

As a part of the Engineering Planning Exercise we have been asked by the Dean to explore and report on the current state of Women in Engineering at Waterloo. Our report will be due in early June. The report will include recommendations for the short term as well as recommendations for the long term.

Should the committee feel we would benefit from additional membership we can invite others to join our committee on either a short or long term basis.

II Introductions

All task force members present introduced themselves and identified their particular departments.

III Defining the Task Force Mandate

The mandate should be changed to reflect the interests of prospective students and faculty in addition to the current students and faculty.

ACTION: New mandate: To review female participation at all levels, (undergrad, grad, and faculty), both current and prospective, by considering the University of Waterloo Engineering environment; identifying barriers to women as prospective and current students and faculty, and to make recommendations based on our findings.

IV Memo to all faculty members

We discussed sending out a different memo to the female faculty. Should we be informing the women students about the Task Force?

ACTION: It may be difficult to filter out the women in these two groups. The memo will go out as drafted to all faculty members with the new mandate inserted. Discussion will continue on how to alert the female students.

V Discussion of the current situation for WIE at Waterloo

WIE numbers at Waterloo are low for both the current and prospective students and faculty. There has been a number of reports on the situation of WIE at Waterloo that would be useful to consult.

VI Establishment of an action plan for WIE Task Force

How are we going to collect information on the current state of WIE at Waterloo?

ACTION: We will devise a short survey which can be distributed to undergrad students and faculty. We can target the graduating students. Lesley James will initiate the preparation of the questionnaire. Bill Lennox will look into the approval process by the Ethics department for the use of questionnaires

ACTION: In the past many surveys and focus groups have taken place that ask similar questions concerning WIE. We will look into whether or not that data is still available and if it could be useful for our purposes.

We could consider making one of our recommendations be that some of the information gathered through this task force could be posted to a web site available for prospective students to view.

VII Future Meetings

Wednesday, March 16, 2005 at 3:30 pm in Room E2 4404

Adjourned at 5:15 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, March 16th, 2005
3:30 p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Kim Boucher, Toni Carlisle , Bernice Chan, Natasha Derbentseva, Devon Hutchinson, Lesley James, Bill Lennox, Ladan Tahvildari, Leanne Whiteley

I Survey Questions

Discussions concerning the survey questions brought about the final draft of the survey.

II Method of Distribution and Target Group

The target group of this particular survey is the graduating class of Engineering students. A representative from our committee will visit each department's 4th year common class to distribute the survey.

Civil	Leanne
Chemical	Lesley
ECE	Ladan
Mechanical	Devon
Systems Design	Bernice

III Future Meetings

Wednesday, March 30th, 2005 at 3:30 pm in Room E2 3324

Adjourned at 5:15 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, March 30th, 2005
3:30 p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Kim Boucher, Toni Carlisle, Bernice Chan, Natasha Derbentseva, Devon Hutchinson, Lesley James, Ladan Tahvildari

Excused: Bill Lennox, Leanne Whiteley

I Survey

The surveys have or are being completed and returned to Amy for summary at our next meeting.

II Plans for the gathering of information (remaining undergraduate students; graduate students; Faculty)

- We want to make use of any information available in previous reports done on WIE
- Areas to be covered:
 - Undergrad
 - Recruitment
 - Graduating (*done*)
 - Previous reports (*Devon-co-op report*)(*Ladan will go through WIE files here*)
- Christine will report back with information on what other Ontario Universities are currently doing.
- For the grad students we have approximately 150 female grad students currently. We may wish to offer a free lunch where we can have a focus group. We would like to send them the invitation by email. Natasha will look into getting their email addresses.
- For the Faculty Focus Group we should aim for the Potluck already occurring on April 19th
- Since our student members will likely not be able to join us in the near future we asked for their comments on WIE at U of W and what suggestions they might have:
 - Better community advertising with booths, but with more exciting information not just statistics and female faculty info. Use real female engineers as examples. Conestoga Mall across from La Senza is not a good location
 - Queens has an excellent outreach program for high school students; we need more female representative visiting the high schools or a WIE sleep over or camp day for students.
 - We could also try partnerships with organizations already out there working with the high school students such as Front Runners

- A dedicated staff member could keep initiatives like this up and running permanently as opposed to students who come and go and staff members that have a variety of other duties which interfere with following through with certain events.

III Future Meetings

Wed. April 6th Grad Focus Group Questions, Analysis of Reports & Source Info
 April 13th Reading & Analysis of all information
 April 20th Reading & Analysis of all information
 April 27th Prepare Summary

Wed. May 4th Recommendations
 May 11th Recommendations
 May 18th Recommendations
 May 25th Recommendations

All meetings will be held at 3:30 pm and will be in Room E2-3324 except for April 6th which will be at 4:00 pm in Room E2-3324 and April 13th which will be in Room E2-4404.

Adjourned at 4:30 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, April 6th, 2005
4:00 p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Kim Boucher, Bernice Chan, Natasha Derbentseva, Devon Hutchinson, Lesley James, Leanne Whiteley

Excused: Toni Carlisle, Bill Lennox, Ladan Tahvildari

I Grad Focus Group Questions

The Dean has approved a lunch for our focus group.

We have decided since Architecture is so new and not actually a part of the Faculty until May 1st they will not be included in our study. If we do further investigation next year they will be included at that time.

Our Venue is South Campus Hall, on April 28th. We all agree on ordering Pita Pockets and Wraps for the lunch. We should prepare an oral document for recorders to read from to keep the conversation flowing. Some minor changes to the proposed questions were discussed and accepted.

II Faculty Focus Group Questions

Due to the absence of Ladan Tahvildari, we will delay this discussion until the next meeting on April 13th 2005.

III Analysis of graduating student's survey

The analysis gives us some useful information. Amy will continue to work on inputting the data into a format we can manipulate to get particular department information and eventually work in the survey data from the male respondents.

IV Undergraduate student's reports and Source Info

Delayed until next meeting on April 13th 2005.

V Task Planning for Future Meetings

We will assign documents for reading at our next meeting on April 13th.

Adjourned at 5:00 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, April 13th, 2005
3:30 p.m. – E2 4404**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Ladan Tahvildari, Kim Boucher, Natasha Derbentseva, Devon Hutchinson, Leanne Whiteley

Excused: Toni Carlisle, Bernice Chan, Bill Lennox, Lesley James

I Faculty Focus Group Questions

Moved for discussion at later meeting as the event we were planning to use is being cancelled.

II IBM Initiative

Leanne spoke briefly of the activities in the IBM initiative. Please see attached document.

III Women in Engineering Group, Faculty of Engineering

Ladan spoke briefly of the past activities of the Women in Engineering Group. The group has not met in the last two years. Ladan is new to the position and hopes to bring some new life and activity into the group.

She is currently working on updating the web site; compiling any past information that can be found and she hope the WIE group can meet sometime in May.

IV Undergraduate student's reports and Source Info

Delayed until next meeting on April 21st 2005.

V Task Planning for Future Meetings

Next meeting has been changed from April 20th at 3:30 until April 21st at 3:15 in room E2-3324.

Our meeting for April 27th has been cancelled; no meeting has been rescheduled in its place.

We will be targeting May 11th for completion of our recommendations for undergraduate students.

Adjourned at 5:05 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Thursday, April 21st, 2005
3:15p.m. – E2 4404**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Ladan Tahvildari, Kim Boucher, Natasha Derbentseva, Devon Hutchinson, Lesley James

Excused: Toni Carlisle, Bernice Chan, Bill Lennox, Leanne Whiteley

I. Undergraduate students Reports and Source Info

Delayed until next meeting May 4th.

II. Recommendations

Ladan:

- Spread info about discipline through high school, interdisciplinary options (develop brochure for grad and undergrad students)
- Inform kindergarten about engineering using role models
- Resume building lessons should be timed properly and applicable, more support from profs for speaking on this matter

Kim:

- Recruitment targeted at women, develop a strategic plan and the resources to go with it.
- Have one staff member coordinating women issues as recruitment grad, undergrad and WIE.
- Tackling better communication between groups, having events that better meet students needs.

Devon:

- Getting at younger high school kids, explaining what engineering is about and the various disciplines.
- Event: sleepover, with Junk Yard wars, and stay in residence. Possibly making a web site as well and use current student volunteers to assist.
- Highlighting the fact that engineering benefits society.
- Consistency with the WIE Committee.

- Have more WIE events such as managing a family and your career, the events must be fun.

Natasha:

- Advertisement campaign for WIE.
- Training the male professors to teach women more appropriately.

Amy:

- Have more female profs introduced to the students in first and second year.
- Provide help to female students who may have problems on work terms.
- Lesley:
- External resources should be employed such as other Universities, PEO and other WIE groups.
- We should target counsellors, teachers and librarians and better educate them about Engineering.
- Workshops for faculty on communication in general.

Christine:

- Efficient use of volunteers.
- Monitoring System.

III. Task Planning for Future Meetings

For our Focus Group Lunch we will need:

Name Tags with department and attendance status. **Amy**

Paper and pens. **Christine**

Call about getting an overhead and screen, if we can't borrow one Lesley can bring one from Chem Eng. **Amy**

Increase the veggie portion of the meal to 25% **Amy**

Our next meeting will not be until Wednesday May 4th at 3:30 in Room E2-3324

Adjourned at 4:30 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, May 11th 2005
3:30p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Bill Lennox , Devon Hutchinson, Leanne Whiteley, Lesley James

Excused: Toni Carlisle, Bernice Chan, Ladan Tahvildari, Kim Boucher, Natasha Derbentseva,

I. Recommendations from Focus Group

Devon & Kim

- Child care is often overlooked by the faculty, we should discover what is currently being done here and at other universities
- More get togethers for female grads and all grads in general
- We should look deeper to discover the individual issues from individual departments
- More co-ordination & liaison with admissions and recruitment---open communication

Bill

- PEO- hire a co-op student to investigate what resources are available
- Heavily target Grade 9&10 even grade 8. Students must choose their educational future at the end of grade 10. To target those in Grade 8 we need to target the teachers.
- ESQ has 200-300 workshops held over May & June
- Go directly into classroom and/or contact teachers
- Collaboration or outside resources to help inform about engineering and what role women can play. Things such as ads on tv and print

II. Recommendations for Undergrad Students

- From the survey data, it is clear that counsellors seem to be low on the helpfulness rating, especially among the girls

III. Task Force Planning for Future Meetings

- Meeting for next Wednesday May 18th is cancelled. We will meet again for our next scheduled meeting on May 25th at 3:30 in Room E2-3324.

Adjourned at 4:30 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, May 11th 2005
3:30p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Bill Lennox, Devon Hutchinson, Lesley James

Excused: Toni Carlisle, Bernice Chan, Ladan Tahvildari, Kim Boucher, Natasha Derbentseva, Leanne Whiteley

I. Recommendations from Focus Group

Devon & Kim

- Child care is often overlooked by the faculty, we should discover what is currently being done here and at other universities
- More get-togethers for female grads and all grads in general
- We should look deeper to discover the individual issues from individual departments
- More co-ordination & liaison with admissions and recruitment---open communication

Bill

- PEO- hire a co-op student to investigate what resources are available
- Heavily target Grade 9&10 even grade 8. Students must choose their educational future at the end of grade 10. To target those in Grade 8 we need to target the teachers.
- ESQ has 200-300 workshops held over May & June
- Go directly into classroom and/or contact teachers
- Collaboration or outside resources to help inform about engineering and what role women can play. Things such as ads on TV and print

II. Recommendations for Undergrad Students

- From the survey data, it is clear that counsellors seem to be low on the helpfulness rating, especially among the girls

III. Task Force Planning for Future Meetings

- Meeting for next Wednesday May 18th is cancelled. We will meet again for our next scheduled meeting on May 25th at 3:30 in Room E2-3324.

Adjourned at 4:30 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, May 27th 2005
3:30p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Bill Lennox, Natasha Derbentseva, Kim Boucher, Leanne Whiteley

Excused: Toni Carlisle, Bernice Chan, Ladan Tahvildari, Devon Hutchinson, Lesley James

I. Review of the Draft Copy of the Undergraduate Portion of the Final Report

- The structure of the report will contain:
 1. Introduction
 2. Task Force Mandate
 3. Purpose of Planning Exercise
 4. Statistics on the current state of Women in Engineering at Waterloo (provided by Lesley)
 5. Background Information
 - a) IBM Initiative (provided by Lesley)
 - b) WIE Committee (provided by Ladan)
 - c) Recruitment Initiatives (provided by Kim)
 - d) Survey conducted with the Undergraduate graduating class
 - e) Focus Group Lunch for Graduate student
 - f) Discussions with female faculty members
 6. Recommendations
 7. Appendices (results from initiatives d, e and f)
- Some additions under Observation A could be:
 - Identify female students getting awards, follow up and encourage them to apply for more
 - Encourage women to apply for scholarships already available
 - Supervision of co-op student
 - Coordinate with external resources
- Also under Observation A we should expand and/or identify where we use the words “groups” and “activities/initiatives”
- We should change the words under Recommendation A1-4 from “make it more well known” to “increase its exposure”
- Under Recommendation B3, it should read any recipient of CEMF and the acronym should be written out in full

II. Task Force Planning for Future Meetings

- Our next meeting is scheduled for next Wednesday June 8th at 3:00 in Room E2-3324. Refreshments and treats will be served.

Adjourned at 4:05 pm

:ar

Amy Resmer for Christine Moresoli

**Faculty of Engineering
Task Force on Women in Engineering
Decision/Action Statement**

**Wednesday, June 8th 2005
3:30p.m. – E2 3324**

Present: Christine Moresoli (Chair), Amy Resmer (Secretary), Ladan Tahvildari, Kim Boucher, Natasha Derbentseva, Leanne Whiteley

Excused: Toni Carlisle, Bernice Chan, Bill Lennox, Lesley James, Devon Hutchinson

I. Review of draft copy of Report

Below are comments, suggestions, additions and answers that were arrived at while reviewing the report.

Section 3.1

- Possibly we should show a breakdown under the graduate students of Masters and PhD in the second table
- Possibly we should add some graphs to this area as they are easier to read and put the tables in the appendices
- A comment in this section could mention that certain drops in particular programs are due to new programs emerging

Section 4.1

- The WIE web site is maintained by Debbie Collins in the Deans office

Section 4.2.1

- Possible addition could be that the Dean sent all women who were sent an offer a welcome letter

Section 4.2.2

- In replace of the first sentence “Eng Soc is expected to organize activities in collaboration with WIE but encounters difficulty due to a lack of communication and continuity.” In the second sentence identify that the students are undergrad.
- The selection process for Eng Soc is done at the end of the term prior to the term applied for.
- In the last paragraph the word significantly should be added after varies. It should be noted that WIE directors change each term and are that who attends what conference is done by Eng Soc.

Section 4.2.3

- Some analysis of the table outlining the number of responses we received for the graduating student's survey.

Section 4.3

- The word "first" should be removed from the first sentence. The third sentence should have the word graduate to describe the type of students. And the missing information about group size is 6-8.

Section 4.5

- Issues relating to obtaining the lab tops should be mentioned.
- In the last paragraph the missing # of workshops is 4.
- In the table the Waterloo Public Library should only say Fall 2004 and the Local Girl Guide Group should only read Winter 2005

Section 5.1

- The second sentence should be put in the Executive Summary as it is very important
- Under #5 we should add the compiling of a list of scholarships, awards and bursaries
- Rewording of sentence under Observations B- "...the group that has been established to lead most initiatives/activities but has encountered challenges in fulfilling this mandate."
- Under Observation C the number of workshops is 24.
- Recommendation C2, should include a database of volunteers, which would be maintained by the staff member. A fourth event to add would be campus day.
- Under Recommendation E1 it should state to pursue contacts with external resources and the benefits from these relationships such as increased resources, learning from successful women initiatives and the opportunity to be involved in larger activities

Section 5.2

- Observation F should include ensuring that Eng Soc is sending delegates
- Recommendation F1 should be deleted

Adjourned at 4:30 pm

:ar

Amy Resmer for Christine Moresoli

Appendix 2 - Women Enrolment (%) in First Year Engineering Class at University of Waterloo

Program	2004	2003	2002	2001	2000	1999	1998	1997	1996
Chemical	25	32	42	48	56	49	43	40	40
Civil	18	24	26	24	15	35	20	17	12
Computer	4	7	14	9	12	14	8	10	8
Electrical	12	20	25	17	19	19	24	21	13
Env (Chemical)			59	43	53	37	57	49	63
Env (Civil)	24	54	42	32	34	40	35	33	20
Geological	20	23	11	30	40	24	17	11	19
Mechanical	9	8	10	19	15	12	14	12	15
Mechatronics	12	11							
Software	7	14	16	17					
Systems Design	20	29	36	36	34	33	34	27	28
Total	13	17	23	24	23	24	23	21	21

Appendix 3 - University of Waterloo WIE Committee - Examples of Past Activities

"Getting to Know You" - Women in Math and Engineering Reception

Reception was on November 19, 2003 and featured two guest speakers from IBM and plenty of time for networking. The topics covered were building a professional career as a woman, and a new outreach program from IBM that involves IBM professionals and women engineering students running programs for girls in grades 7 to 9 at local schools.

WIE Reception: "Women in Leadership Roles and Reaching This Goal"

On Tuesday evening, July 15th, WIE hosted their term-annual Reception. An interested group of men and women from a variety of engineering disciplines (and even one from economics!), along with Professor Beth Weckman, from Mechanical Engineering, gathered to hear successful women in the engineering field discuss their views on leadership.

WIE Movie Night

On June 24th, 2003 WIE hosted a movie night in P.O.E.T.S. Featured films were Just Married and Pretty Women. The evening was a relaxed atmosphere of casual discussion and visiting. Snacks and refreshments were provided by WIE. Good times were had by all! Thanks to everyone who came out. Hope to see you all at upcoming events.

Women in Engineering/Men in Engineering Night

On Wednesday May 21, 2003 women and men from different engineering disciplines, here at UW, gathered to discuss the importance of each other's roles in the engineering field. The evening began with Professor Susan Tighe, from the Civil Engineering department, leading the discussion on why it is important for men in engineering to understand women's roles in engineering.

Women in Engineering Wine and Cheese Reception

On Thursday, March 13, 2003, Women In Engineering Committee hosted a reception. A graduate student from Civil Engineering kindly volunteered to talk about the options after graduation specifically in regards with doing masters. She touched on topics including how to pick a supervisor under the light of her own personal experience.

Women in Technology Night: "Women in the Work Force"

Karen Cartmell a speaker from WIM spoke about "Balancing a Successful Career with Family Life" set herself as an example of a working woman with a family and spoke under the light of her own personal experience as a Woman In Technology.

Appendix 4 - Grade 9 & 10 Girls Engineering Design Challenge

University of Waterloo
Faculty of Engineering

Grade 9 & 10 Girls

Engineering Design Challenge

We're trying a new event this year to help encourage girls in early high school to consider engineering as a career. It will be a small pilot project that could be expanded in the future if it's successful.

The goals of this event are that the girls will:

- learn a little about engineering and the design process
- know need to keep taking math and science to keep their options open
- experience that engineering at Waterloo is a friendly place and to keep in touch with us if they'd like to study engineering here or at any university

This event would be in addition to the other UW events for girls sponsored by the Faculty of Engineering such as "A Day with a Difference" career day for grade 8 girls, and Engineering Science Quest (ESQ) workshops specifically for girls.

We'll invite grade 9/10 girls to do a "Scrap Heap Challenge", loosely modelled after the TV show "Junkyard Wars". Prof. Carolyn MacGregor has used this successfully with the 1A SyDE students and would be willing to run it for this event. The "scrap heap" they would be supplied with would include things we can easily collect – empty paper towel rolls, yogurt containers, string, elastics, etc. Carolyn has some kits of basic tools (scissors, masking tape, etc) that she can bring. Ideally there would be 4 teams of 6 people each: 4 high school students and 2 engineering students on each team.

Date: Wednesday February 27, 2002

Location: Engineering 2, room 1307C (SyDE seminar room)

Time: 4:00 - 7:00 pm

Agenda:

- | | |
|-----------|--|
| 4:00-4:15 | meet, brief welcome, intros |
| 4:15-4:30 | short design lecture and intro to challenge |
| 4:30-5:15 | work on the challenge in teams |
| 5:15-5:45 | testing/demos |
| 5:45-6:00 | clean up |
| 6:00-6:15 | debriefing, awarding of prizes, professors briefly describe their area of research, brief mention of admissions requirements |
| 6:15-7:00 | pizza and conversation |

Teams:

- 4 teams, each consisting of 4 high school students and 2 engineering students

High school participants:

- approx. 16 grade 9/10 girls
- 2-4 interested teachers
- initially approach KCI & St. Mary's
- Carolyn MacGregor has a contact at KCI
- Kim Boucher has a contact at St. Mary's
- We'll ask the teachers/guidance counsellors to hand pick about 8 girls per school that are doing well in math and science, and might benefit from this event (they don't have to know much about engineering – that's the whole point!)
- We'll encourage 1-2 teachers from each school to attend with their students as well so that they can also learn a little more about engineering

UW participants:

- approx. 8 women in undergrad engineering (hand-picked from a range of disciplines by the event organizing group)
- these students would be good role models and would be supportive “coaches” for the design challenge team
- Carolyn MacGregor to run the workshop
- Susan Tighe, Monica Emelko, Bill Lennox, Carolyn MacGregor, Kim Boucher on the event organizing group
- Organizing profs to observe and offer suggestions during the workshop, briefly describe their area of research, and be available for informal conversation over pizza
- invite the Dean and others (i.e. Carolyn Hansson) to drop by and watch the testing and/or pizza and conversation
- someone to take photos
- Kim Boucher to organize event details, briefly describe admission requirements and provide engineering booklets, PEO high school booklets, a small log book and pen to make notes
- provide contact information and profiles of some women profs and possibly students

Kim Boucher

January 16, 2002

Appendix 5 - Letter of the University of Waterloo President

Greetings!

I am delighted to be able to encourage you to come to the University of Waterloo. I began university at the age of 17 and loved it so much I never left. And now, as the father of five daughters, I have seen the wonderful impact a good education has had on their lives. My daughters are all in professions and public service. Their education contributed immeasurably to their life skills and experiences, which has made them better citizens with more to contribute to their communities throughout their lives.

Our Faculty of Engineering includes wonderfully successful female students that I'd like you to join! Below, you'll find just a few examples of some of the outstanding women here at UW.

- **Analene Go, Munira Jessa and Kimberly Tuck** won the Walt Disney Imagi-Nations Design Competition in 2003 by designing a new amusement park ride based on the movie *Monsters Inc.* These three talented young women beat the other 50 entrants from all over the world had the opportunity to present their design to the Walt Disney Imagineers and met Disney CEO Michael Eisner.
- **Leanne Whiteley** completed her undergraduate degree at Waterloo and is currently working on completing her masters in engineering at Waterloo. Leanne has been on the Women in Engineering Committee for the last 5 years, was co-captain of the 2004 Great Northern Concrete Toboggan Team which won the 2004 award for "Best Brake Design", and she was the President of the Engineering Society during the 2002/2003 academic year. For more information about the Women in Engineering Committee, please visit their web site: <http://www.eng.uwaterloo.ca/%7Ew-in-eng/>
- **Sonya Konzak** is a fourth year engineering student and the current President of Engineers Without Borders which is an organization that was started by two Waterloo Alumni. Sonya completed an Engineers Without Borders internship in Ghana during the summer of 2004 and had some incredible experiences working with a small NGO called *NewEnergy* in Ghana exploring renewable energy, water, sanitation, education and loans for the people in Ghana. For more information on Sonya's adventures in Ghana, visit the Waterloo Engineers Without Borders web site: <http://www.waterloo.ewb.ca/>

I hope you decide that UW is the place for you. I look forward to meeting you in person.

Sincerely yours,

David Johnston,
President

Appendix 6 - Lunch/ Discussion Meeting - Women Graduate Students

Focus Group Summary

#1. What attracted you to Graduate Studies in Engineering? (Speak from personal or observed experience. Give specific examples, whenever possible.)

Electrical & Computer Engineering

- Wants to become a professor
- Family has an interest in Engineering
- Finding a good job in industries
- Likes research
- Interested in studying
- No GRE requirement
- Charming supervisors
- Well paid after graduation

Mechanical Engineering

Mentioned that with no Canadian experience, it's difficult to get a job, so started graduate studies to be better suited to get a job. Work in the Faculty is easier for women because it's more flexible, so grad work is required to become faculty.

Systems Design Engineering

- work with flexible hours and sufficient funding (through scholarships, etc)
- interest in engineering research
- higher learning
- connections/recommendations from supervisor
- increased credentials for future work opportunities
- new environment for exchange students (cultural, social, etc)

Chemical Engineering

- -familiar with this school
- -financial support from prof in Eng
- -like the university
- -heard ChE is the most challenging eng
- -higher pay after graduation
- -easier to find a job in research
- -have more time to have a family before working in the industry

- -job prospects; specialization in your choice of work
- -no entrance exam requirements

Civil & Management Sciences

- **Interesting research:**
 - Research looked interesting especially the part about water + risk + climate change
 - Interested in structures
 - Background industrial & wanted to get into operations
 - Interested in managerial engineering
 - Especially related to operations research
- **Practical experience** → applied to getting a job
 - Hoped it would be practical
- Good way to get local (**Canadian**) **degree** to get a job as an immigrant because often engineering degrees from elsewhere aren't always recognized.
- **Access to funding** (for Civil; NOT for MSci)

#2. Do you know women who considered Graduate Studies in Engineering but did not enrol? Why not? What might have influenced them to choose graduate studies in engineering (Please do not provide names)?

Electrical & Computer Engineering

- We do not know anybody, there was a girl who preferred to find a good job rather than grad studies

Mechanical Engineering

Mentioned the difficulty of having a family if you wanted to do your PhD because there is no facility for children etc.

- There is a lack of funding for pregnant women and if a woman waited to have a child until after they were done their PhD, it becomes too late.
- Having a child during the time a woman is completing her PhD extends the time to complete it which doesn't look good on a resume.

Systems Design Engineering

- non engineering background (no engineering undergrad)
- age limitation and family responsibilities (kids and school don't mix)
- lack of funding

Chemical Engineering

- -did not enroll because no financial support; insufficient marks
- -did enroll into grad studies because of lack of job opportunities

Civil & Management Sciences

- Found a **good job** instead
- **Not sure about the use of PhD** if don't want to continue in research or teaching.
- Some kept going from Master's to PhD because couldn't get a job + had PhD funding.

#3. Do you know women who did not consider Graduate Studies in Engineering as an option but you think should have? What might have helped them consider graduate studies in engineering more favorably (Please do not provide names)?

Electrical & Computer Engineering

- There are some factors affected grad studies for women are money, family (boyfriends, husbands...), location of husband/boyfriend, and having a kid.
- Solution: more information, more financial support
- Too tough for women
- Too much mathematics

Mechanical Engineering

A friend from home has a BSc. and doesn't make enough money. These women don't see an opportunity for her to get a better job unless she was to enrol in graduate studies.

Systems Design Engineering

- unfair to judge others

Chemical Engineering

- money
- -time commitment
- -when you start work; you start off at same level as someone with no grad degree
- -job market is good, why consider grad studies

Civil & Management Sciences

- Tired of studying
- Wanted a better paycheck
- Wanted more structure of day job
- Looking for a boss that will tell them precisely what to do
- Because of stereotype of engineering being male dominated
- Don't know what engineering is all about vs. pure science (for non-engineering undergrads)

#4. What opportunities, if any are overlooked in attracting women to graduate studies in engineering?

Electrical & Computer Engineering

- More female faculty members
- More successful women in graduate studies
- More information
- Better collaboration between Computer Science and Electrical & Computer Engineering. Because one of our students loves this area very much.
- Give some priority to women in job market, and better aid for women engineering students.
- How to cooperate better between industry and academic research communities, so that graduate students can get a better job opportunity.
- Improve the University's image in the industry to attract more research sponsorship from companies.
- PhD means faculty position??? It seems that the industry and the academic communities are too separated.

Mechanical Engineering

Request for the Faculty to pay more attention to women with children. Students get \$700/month. Including the help from the University, still more than half the salary goes to day care without considering other expenses.

- An additional problem is after a women gets her PhD, then it's time for her tenure. These women pose the question of if it's possible for a women to have a child, give birth, raise him or her and also have good tenure? They conclude that a woman can either have a family or a good career unless more opportunities are provided for the woman with children.

Systems Design Engineering

- no daycare bursaries available
- going beyond program time limit = no funding (even pregnancy/maternity terms are counted as registered terms)
 - recommendation: discount time for medical/family issues
- no discount on child care for students

Chemical Engineering

- -more funding
- -more job hunting help for students with grad degree
- -better more publicized information about maternity leave benefits
- -availability of child care
- -market advantages of a grad degree wrt career options
- -quality of life

Civil & Management Sciences

- Grad school in engineering is more accepting to women than workforce
 - Would expect more females in grad school
- Point out benefits of a Canadian degree recognized by Canadian employers
- Open seminars about various research going on given by professors especially to 4th year students
- More active recruitment to undergrads
- Advertise potential or actual or more interesting jobs that you can get with a Master's or PhD
- Highlight that Grad school can be more flexible than a regular job especially as pertains to raising kids simultaneously.
- Provide more access to daycare

#5. What could the Faculty of Engineering do to make your experience at University of Waterloo more enjoyable?

Electrical & Computer Engineering

- More female grad students.
- Having more social events in the departments
- Having a more friendly community
- More general (not technical) talks
- More meeting/events between different research groups
- Increase the RA and TA support
- Maybe the University research more involved in the industry, more collaboration with US Universities to open our minds.
- Opportunities for exchange students with US or European universities
- Invite more speakers for the industry to give seminars e.g. women speakers
- Better advertisement for UW

Mechanical Engineering

- Housing is very expensive. Providing smaller houses with lower rent would be very beneficial.
- More gatherings may be better, then you see that other women have the same problems

Systems Design Engineering

- more diversity from other universities
- more female mentors (supervisors)
- orientation for new students (intro to school, people, labs, etc)
- more interaction, social meetings/gatherings

Chemical Engineering

- -more 'get to know you' activities
- -more social activities; involve the whole department
- -more funding
- -easier application process, especially for international students
- -incentive awards for women in engineering
- -communication style from supervisors
- -professor attitude towards women (not as complete equal; some profs have been perceived to make sexist comments; some male profs like female students too much)
- -more of a balance between male and female profs
- -more female profs as role models

Civil & Management Sciences

- More communication between professors and students in different research areas
 - Monthly seminars
 - Want to broaden knowledge outside own specific research area
- More contact with industry
 - Especially with respect to courses
 - Make more practical
 - Want to use "real" data
- More interaction/communication between different research groups especially where there is overlap
 - More interdisciplinary partnerships

Appendix 7 - Letter Inquiring about Maternity / Parental Leave

Dear X;

As part of a strategic planning exercise at the University of Waterloo, the Faculty of Engineering has created a task force to review and make recommendations on the participation of women at all levels of Engineering at the University of Waterloo.

One aspect that we are trying to explore is maternity/parental leave and childcare for graduate students in Engineering. As part of this exploration, we would like to compare what the University of Waterloo offers its Engineering graduate students compared to other universities in Ontario and across Canada.

It would be extremely helpful if you could help us understand how *insert University* handles the following components of parenting for graduate students:

1) **Benefits**

- a. Do graduate students receive any maternity/parental benefits? If so, how much and for how long? Is it in the form of a bursary or a top up to EI benefits?
- b. Medical Insurance – Can graduate students continue to enrol in the medical insurance plan while on maternity/parental leave? If so, is it paid for by the University or is it up to the students to contribute? How much per term?
- c. How much leave can graduate students take for maternity/parental leave?

2) **Daycare**

- a. Are there daycare facilities available to graduate students at your university?
- b. Is the daycare restricted to university affiliated persons (staff, faculty, students) or is it open to the public?
- c. Is the daycare funded by the university?
- d. How much does daycare cost?
- e. Is the daycare subsidized for staff/faculty or graduate students? If so, by how much?
- f. Is there a waiting list and if so how long?

We really appreciate your cooperation in helping us gather this important information. We would be happy to share the results of these questions with you once compiled. If you are interested in receiving a copy of these results, please let us know.

Thank you kindly.

Yours truly,

Lesley James
 Women in Engineering Task Force
 University of Waterloo

Appendix 8 – Survey Engineering Undergraduate Class of 2005

#1 a) Please indicate your gender.

F M

b) Please circle your department.

Civil Chemical ECE Mechanical Systems Design

c) At what age did you decide to be an engineer?

<10 10-15 16-20 20+

d) What do you plan to do next year?

Engineering Grad School Other School Employment in Engineering Other Employment

#2 Please use the following scale for the next questions:

- 1 Excellent
- 2 Very Good
- 3 Good
- 4 Poor
- 5 Unacceptable

Please indicate the quality of advice you received regarding engineering as a career prior to entering university from:

Individual	Ranking					Importance to you	
Family	1	2	3	4	5	High	Low
Teachers	1	2	3	4	5	High	Low
Counsellors	1	2	3	4	5	High	Low
Friends	1	2	3	4	5	High	Low
Universities	1	2	3	4	5	High	Low
Other_____	1	2	3	4	5	High	Low

#3 Indicate the Quality of your experience in the following categories at U of W:

Area	Ranking					Importance to you	
Academically	1	2	3	4	5	High	Low
Co-op	1	2	3	4	5	High	Low
Socially	1	2	3	4	5	High	Low

Comments: _____

#4 Indicate the quality of support provided by the following:

Support from	Ranking					Importance to you	
	1	2	3	4	5	High	Low
Profs/Lecturers	1	2	3	4	5	High	Low
Lab Instructors	1	2	3	4	5	High	Low
Teaching Assistants	1	2	3	4	5	High	Low
Classmates	1	2	3	4	5	High	Low
Eng Soc	1	2	3	4	5	High	Low
Student Project Grps	1	2	3	4	5	High	Low
Co-op Office	1	2	3	4	5	High	Low

#5 There are probably many things we can do or could do better in order to enhance the overall environment for women at the University of Waterloo. Do you think there are barriers to Women in Engineering in the following areas:

Before arriving at University Yes No Example_____

While attending University Yes No Example_____

After Graduating Yes No Example_____

Suggestions for improvements:

#6 Looking back, what is the one thing you wish you knew before coming to Engineering at the University Waterloo?

#7 What could the University of Waterloo and/or Faculty of Engineering do to attract more females into Engineering?

#8 Would you recommend University of Waterloo Engineering to other females? Yes No

WIE Graduating Students Survey

#1 Breakdown of gender, department and the age the individual decided to become an engineer?

Count of Age Group		Gender		Grand Total
Department	Age Group	F	M	
Chemical	<10	1	1	2
	10-15	2	2	4
	20+	2	1	3
	1No Answer-20	22	19	41
Chemical Total		27	23	50
Civil	<10		1	1
	10-15	3	2	5
	20+		1	1
	1No Answer-20	14	25	39
Civil Total		17	29	46
ECE	<10	1	6	7
	10-15	2	6	8
	20+	1	5	6
	No Answer		1	1
	1No Answer-20	18	57	75
ECE Total		22	75	97
Mechanical	10-15		4	4
	20+		5	5
	1No Answer-20	11	51	62
Mechanical Total		11	60	71
Systems Design	10-15	1	2	3
	1No Answer-20	5	7	12
Systems Design Total		6	9	15
Grand Total		83	196	279

#1 continued...What do you plan to do next year?

Count of Next Year		Gender		Grand Total
Department	Next Year	F	M	
Chemical	Employment in Engineering	22	15	37
	Engineering Grad School	3	6	9
	No Answer	1		1
	Other Employment	1	2	3
Chemical Total		27	23	50
Civil	Employment in Engineering	11	19	30
	Engineering Grad School	4	3	7
	No Answer	1		1
	Other Employment		3	3
	Other School	1	4	5
Civil Total		17	29	46
ECE	Employment in Engineering	14	41	55
	Engineering Grad School	3	19	22
	No Answer		1	1
	Other Employment	3	10	13
	Other School	2	4	6
ECE Total		22	75	97
Mechanical	Employment in Engineering	6	38	44
	Engineering Grad School	5	9	14
	Other Employment		11	11
	Other School		2	2
Mechanical Total		11	60	71
Systems Design	Employment in Engineering	4	2	6
	Engineering Grad School	1	3	4
	No Answer		1	1
	Other Employment	1	1	2
	Other School		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

#2 Please indicate the quality of advice you received regarding engineering as a career prior to entering university from:

Advice received from Family

Count of Family		Gender		Grand Total
Department	Family	F	M	
Chemical	Excellent	5	4	9
	Very Good	2	6	8
	Good	10	7	17
	Poor	6	3	9
	Unacceptable	3	1	4
	No Answer	1	2	3
Chemical Total		27	23	50
Civil	Excellent	4	5	9
	Very Good	4	7	11
	Good	4	12	16
	Poor	5	5	10
Civil Total		17	29	46
ECE	Excellent	8	10	18
	Very Good	3	15	18
	Good	5	25	30
	Poor	2	20	22
	Unacceptable	3	5	8
	No Answer	1		1
ECE Total		22	75	97
Mechanical	Excellent	4	13	17
	Very Good	4	17	21
	Good	1	10	11
	Poor	1	16	17
	Unacceptable	1	3	4
	No Answer		1	1
Mechanical Total		11	60	71
Systems Design	Excellent	2	2	4
	Very Good	2	5	7
	Good		2	2
	Poor	1		1
	Unacceptable	1		1
Systems Design Total		6	9	15
Grand Total		83	196	279

The Importance to you of the advice you received from Family.

Count of Family Importance		Gender		Grand Total
Department	Family Importance	F	M	
Chemical	High	17	15	32
	Low	8	6	14
	No Answer	2	2	4
Chemical Total		27	23	50
Civil	High	8	25	33
	Low	7	1	8
	No Answer	2	3	5
Civil Total		17	29	46
ECE	High	18	61	79
	Low	3	10	13
	No Answer	1	4	5
ECE Total		22	75	97
Mechanical	High	11	43	54
	Low		10	10
	No Answer		7	7
Mechanical Total		11	60	71
Systems Design	High	4	7	11
	Low	2	1	3
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Advice received from Teachers

Count of Teachers		Gender		Grand Total
Department	Teachers	F	M	
Chemical	Excellent		3	3
	Very Good	7	11	18
	Good	10	3	13
	Poor	6	3	9
	Unacceptable	4	2	6
	No Answer		1	1
Chemical Total		27	23	50
Civil	Excellent		4	4
	Very Good	9	9	18
	Good	2	5	7
	Poor	4	10	14
	Unacceptable	2	1	3
Civil Total		17	29	46
ECE	Excellent	8	6	14
	Very Good	5	19	24
	Good	3	24	27
	Poor	2	16	18
	Unacceptable	2	9	11
	No Answer	2	1	3
ECE Total		22	75	97
Mechanical	Excellent	2	5	7
	Very Good	2	13	15
	Good	3	18	21
	Poor	2	21	23
	Unacceptable	1	1	2
	No Answer	1	2	3
Mechanical Total		11	60	71
Systems Design	Excellent	2	2	4
	Very Good	2	3	5
	Good	2	3	5
	Poor		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

The Importance to you of the advice you received from Teachers

Count of Teachers Importance		Gender		Grand Total
Department	Teachers Importance	F	M	
Chemical	High	18	14	32
	Low	6	6	12
	No Answer	3	3	6
Chemical Total		27	23	50
Civil	High	13	20	33
	Low	2	6	8
	No Answer	2	3	5
Civil Total		17	29	46
ECE	High	17	49	66
	Low	3	21	24
	No Answer	2	5	7
ECE Total		22	75	97
Mechanical	High	7	29	36
	Low	2	23	25
	No Answer	2	8	10
Mechanical Total		11	60	71
Systems Design	High	6	7	13
	Low		1	1
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Advice received from Counsellors

Count of Counsellors		Gender		Grand Total
Department	Counsellors	F	M	
Chemical	Excellent	1	4	5
	Very Good	5	2	7
	Good	9	4	13
	Poor	7	7	14
	Unacceptable	2	3	5
	No Answer	3	3	6
Chemical Total		27	23	50
Civil	Excellent		6	6
	Very Good	4	3	7
	Good	4	5	9
	Poor	5	11	16
	Unacceptable	2	3	5
	No Answer	2	1	3
Civil Total		17	29	46
ECE	Excellent	2	9	11
	Very Good	5	16	21
	Good	2	7	9
	Poor	3	22	25
	Unacceptable	7	17	24
	No Answer	3	4	7
ECE Total		22	75	97
Mechanical	Excellent	1	4	5
	Very Good	1	9	10
	Good	1	12	13
	Poor	5	19	24
	Unacceptable	1	12	13
	No Answer	2	4	6
Mechanical Total		11	60	71
Systems Design	Excellent	1		1
	Very Good		1	1
	Good	2	2	4
	Poor	3	3	6
	Unacceptable		2	2
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

The Importance to you of the advice you received from Counsellors

Count of Counsellors
Importance

Department	Counsellors Importance	Gender		Grand Total
		F	M	
Chemical	High	7	9	16
	Low	16	10	26
	No Answer	4	4	8
Chemical Total		27	23	50
Civil	High	5	8	13
	Low	8	18	26
	No Answer	4	3	7
Civil Total		17	29	46
ECE	High	7	18	25
	Low	12	51	63
	No Answer	3	6	9
ECE Total		22	75	97
Mechanical	High	4	17	21
	Low	5	33	38
	No Answer	2	10	12
Mechanical Total		11	60	71
Systems Design	High	2	1	3
	Low	3	6	9
	No Answer	1	2	3
Systems Design Total		6	9	15
Grand Total		83	196	279

Advice received from Friends

Count of Friends		Gender		Grand Total
Department	Friends	F	M	
Chemical	Excellent	1	1	2
	Very Good	6	3	9
	Good	8	9	17
	Poor	8	6	14
	Unacceptable	4	1	5
	No Answer		3	3
Chemical Total		27	23	50
Civil	Excellent		2	2
	Very Good	2	3	5
	Good	7	11	18
	Poor	6	9	15
	Unacceptable	1	4	5
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	4	7	11
	Very Good	5	12	17
	Good	4	27	31
	Poor	4	17	21
	Unacceptable	1	7	8
	No Answer	4	5	9
ECE Total		22	75	97
Mechanical	Excellent	1	4	5
	Very Good	2	11	13
	Good	5	23	28
	Poor	2	15	17
	Unacceptable	1	6	7
	No Answer		1	1
Mechanical Total		11	60	71
Systems Design	Excellent	1		1
	Very Good	1	3	4
	Good	3	3	6
	Poor		1	1
	Unacceptable	1	1	2
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

The Importance to you of the advice you received from Friends

Count of Friends Importance		Gender		Grand Total
Department	Friends Importance	F	M	
Chemical	High	16	6	22
	Low	9	13	22
	No Answer	2	4	6
Chemical Total		27	23	50
Civil	High	2	13	15
	Low	11	13	24
	No Answer	4	3	7
Civil Total		17	29	46
ECE	High	14	35	49
	Low	5	32	37
	No Answer	3	8	11
ECE Total		22	75	97
Mechanical	High	7	26	33
	Low	4	26	30
	No Answer		8	8
Mechanical Total		11	60	71
Systems Design	High	3	4	7
	Low	2	3	5
	No Answer	1	2	3
Systems Design Total		6	9	15
Grand Total		83	196	279

Advice received from Universities

Count of Universities		Gender		Grand Total
Department	Universities	F	M	
Chemical	Excellent	4	1	5
	Very Good	6	5	11
	Good	10	9	19
	Poor	4	4	8
	Unacceptable	3	1	4
	No Answer		3	3
Chemical Total		27	23	50
Civil	Excellent	6	4	10
	Very Good	4	8	12
	Good	5	9	14
	Poor	1	6	7
	Unacceptable	1	1	2
	No Answer		1	1
Civil Total		17	29	46
ECE	Excellent	5	7	12
	Very Good	5	20	25
	Good	3	22	25
	Poor	3	17	20
	Unacceptable	2	5	7
	No Answer	4	4	8
ECE Total		22	75	97
Mechanical	Excellent	2	4	6
	Very Good	5	18	23
	Good	3	21	24
	Poor	1	14	15
	Unacceptable		3	3
Mechanical Total		11	60	71
Systems Design	Excellent	1		1
	Very Good	1	1	2
	Good	3	4	7
	Poor	1	2	3
	Unacceptable		1	1
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

The Importance to you of the advice you received from Universities

Count of Universities
Importance

Department	Universities Importance	Gender		Grand Total
		F	M	
Chemical	High	18	10	28
	Low	6	7	13
	No Answer	3	6	9
Chemical Total		27	23	50
Civil	High	13	14	27
	Low	2	11	13
	No Answer	2	4	6
Civil Total		17	29	46
ECE	High	14	40	54
	Low	5	29	34
	No Answer	3	6	9
ECE Total		22	75	97
Mechanical	High	9	24	33
	Low	2	30	32
	No Answer		6	6
Mechanical Total		11	60	71
Systems Design	High	4	4	8
	Low	1	3	4
	No Answer	1	2	3
Systems Design Total		6	9	15
Grand Total		83	196	279

Advice from “Other”

Count of Other		Gender		Grand Total
Department	Other	F	M	
Chemical	Media		1	1
Chemical Total			1	1
Civil	Co-op workers		1	1
	Shad Program		1	1
	Students in engineering school	1		1
Civil Total		1	2	3
ECE	Engineer friend of family		1	1
	Magazines	1		1
	Upper classmates		1	1
	MacLean's		1	1
ECE Total		1	3	4
Mechanical	Industry Professionals		1	1
Mechanical Total			1	1
Systems Design				
Systems Design Total				
Grand Total		2	7	9

#3 Indicate the quality of your experience in the following categories at the University of Waterloo:

Academically

Count of Academically		Gender		Grand Total
Department	Academically	F	M	
Chemical	Excellent	4	6	10
	Very Good	12	10	22
	Good	8	5	13
	Poor	2	1	3
	Unacceptable	1	1	2
Chemical Total		27	23	50
Civil	Excellent	4	4	8
	Very Good	6	15	21
	Good	6	6	12
	Poor		2	2
	Unacceptable	1	2	3
Civil Total		17	29	46
ECE	Excellent	4	4	8
	Very Good	9	21	30
	Good	5	35	40
	Poor	4	12	16
	Unacceptable		3	3
ECE Total		22	75	97
Mechanical	Excellent	2	10	12
	Very Good	7	22	29
	Good		18	18
	Poor	1	8	9
	Unacceptable	1	2	3
Mechanical Total		11	60	71
Systems Design	Excellent	1	2	3
	Very Good	4	2	6
	Good		2	2
	Poor	1	3	4
Systems Design Total		6	9	15
Grand Total		83	196	279

The importance to you of your experience academically

Count of Academically Importance		Gender		Grand Total
Department	Academically Importance	F	M	
Chemical	High	24	17	41
	Low	1	2	3
	No Answer	2	4	6
Chemical Total		27	23	50
Civil	High	16	23	39
	Low	1	1	2
	No Answer		5	5
Civil Total		17	29	46
ECE	High	20	68	88
	Low	1	6	7
	No Answer	1	1	2
ECE Total		22	75	97
Mechanical	High	10	45	55
	Low	1	8	9
	No Answer		7	7
Mechanical Total		11	60	71
Systems Design	High	6	7	13
	Low		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Co-op

Count of Co-op		Gender		Grand Total
Department	Co-op	F	M	
Chemical	Excellent	5	5	10
	Very Good	13	6	19
	Good	5	7	12
	Poor	3	2	5
	Unacceptable	1		1
	No Answer		3	3
Chemical Total		27	23	50
Civil	Excellent	3	8	11
	Very Good	9	9	18
	Good	2	6	8
	Poor	1	4	5
	Unacceptable	1	2	3
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	10	23	33
	Very Good	6	15	21
	Good	1	18	19
	Poor	4	13	17
	Unacceptable		5	5
	No Answer	1	1	2
ECE Total		22	75	97
Mechanical	Excellent	5	20	25
	Very Good	2	16	18
	Good	2	9	11
	Poor	1	9	10
	Unacceptable	1	5	6
	No Answer		1	1
Mechanical Total		11	60	71
Systems Design	Excellent	2	2	4
	Very Good	3	1	4
	Good		2	2
	Poor	1	2	3
	Unacceptable		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

The importance to you of your experience with co-op

Count of Co-op Importance		Gender		Grand Total
Department	Co-op Importance	F	M	
Chemical	High	24	16	40
	Low	1	2	3
	No Answer	2	5	7
Chemical Total		27	23	50
Civil	High	14	24	38
	Low	1	1	2
	No Answer	2	4	6
Civil Total		17	29	46
ECE	High	20	71	91
	Low		2	2
	No Answer	2	2	4
ECE Total		22	75	97
Mechanical	High	11	52	63
	No Answer		8	8
Mechanical Total		11	60	71
Systems Design	High	5	8	13
	Low	1	1	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Socially

Count of Socially		Gender		Grand Total
Department	Socially	F	M	
Chemical	Excellent	7	8	15
	Very Good	6	5	11
	Good	8	4	12
	Poor	5	5	10
	Unacceptable	1	1	2
Chemical Total		27	23	50
Civil	Excellent	6	4	10
	Very Good	5	11	16
	Good	5	7	12
	Poor		5	5
	Unacceptable	1	2	3
Civil Total		17	29	46
ECE	Excellent	9	7	16
	Very Good	6	13	19
	Good	2	23	25
	Poor	3	23	26
	Unacceptable	2	9	11
ECE Total		22	75	97
Mechanical	Excellent	1	12	13
	Very Good	6	15	21
	Good	2	16	18
	Poor	2	9	11
	Unacceptable		8	8
Mechanical Total		11	60	71
Systems Design	Excellent		2	2
	Very Good	4	2	6
	Good	2	2	4
	Poor		2	2
	Unacceptable		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

The importance to you of your experience socially

Count of Socially Importance		Gender		Grand Total
Department	Socially Importance	F	M	
Chemical	High	20	16	36
	Low	5	3	8
	No Answer	2	4	6
Chemical Total		27	23	50
Civil	High	13	22	35
	Low	3	2	5
	No Answer	1	5	6
Civil Total		17	29	46
ECE	High	17	62	79
	Low	4	12	16
	No Answer	1	1	2
ECE Total		22	75	97
Mechanical	High	11	42	53
	Low		11	11
	No Answer		7	7
Mechanical Total		11	60	71
Systems Design	High	5	8	13
	Low	1	1	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Comments from Question #3

Department	Gender	Comments#3
Chemical	F	I think I learned mostly out of competitive classmates, needing to know more just to pass. A lot of teachers a) can't teach b) can't speak/understand English. The TA's are worse. Lab equipment outdated. Lab manuals Often Cryptic. If your class does not require a text book your completely lost.
		Large room for improvement in co-op.
		Met lots of interesting people & like minded individuals.
	M	Co-op n/a (exchange)
		Co-op system no longer "unique"
		Family & friends support me and give advice on a lot of topics. Career-wise. I want info from teachers, counsellors and universities.
		I chose late in my high school career to enter engineering, on the advice of my principal/guidance counsellors. I feel I made a very wise choice.
		I'm a grad student so I didn't answer the co-op question.
		This school has no sense of community and lacks pride in its students. Most faculty seem to be here for themselves and not the students
Civil	F	Been a great experience for me all around!
		Co-op is the one and only thing that kept me in school.
		My ranking of co-op refers only to the experiences I had on work term in dealing with the co-op department my experiences were quite poor.
	M	School workload doesn't leave much time for social activities that are part of the engineering social circle do not appeal.
		I was disappointed that the curriculum didn't cover much drinking water treatment ethics. In many courses I feel that I did not learn proportionately to the amount of work I did/ time I put in. I would have liked to take more ERS courses but it did not fit
		Although I found co-op to be a vary important part of my learning the co-op system was difficult to work with, I found their professionalism, access, answers, etc.. Completely unacceptable.
		Info given in high school was not accurate about engineering. I came due to my interest in it despite what my teachers/counsellors told me. And I and glad I id. It was nothing like what I expected.
		Academics was very good. Gained lots of experience in co-op. Little or no school related social events until final term.
		Co-op makes the school no fun, no school spirit.
		Co-op was reason I came to Waterloo in 1st place. Academically I felt there should have been more class options.
Co-op: I originally was pigeoned holed into straight civil. Jobs and struggled with co-op while I tried to get more environmental focused jobs. Academics: Their were a variety of classes where I had PhD students as profs.		
Not until our class got access to our 4th year study lounge did I really start to get to know people. Each class should have their own lounge; sort of central place for everyone to meet.		
I wish we were taught some softer and more social things that should go with engineering so that we can be better prepared, like English writing etc..		
Workload at UW does not allow a component of time to be spent socializing if you want to excel in your studies.		
I feel UW is somewhat of a conservative school, not a great deal of social scene but its OK.		
	I have spent 2 co-op terms at other universities (Arizona, Amsterdam) Waterloo's	

		"community" of undergrad staff & faculty are unparalleled; great time.
ECE	F	Had a great time socially but not through university channels-all through clubs and own interests.
		I'm an exchange student from France. Our educational system is pretty different from yours so I'm not sure my answers are relevant. Also I did not do co-op at UW.
		Very little available time for social events.
		I found the academic component of the program very disappointing especially in the first few years. The main reason for this was the quality of teaching which improved in 4th yes (in general). Part of the reason for the improvement was b/c we were able to
		The course requirements can negatively impact social events. In ECE the competitive environment reduces social aspect.
	M	Academics are just there to prove you can learn.
		Co-op was the one saving grace of UW.
		Due to class scheduling, there is little chance in interacting with people outside your own class.
		ECE needs some serious re-design.
		Engineering meant I had no social life. And I never did an assignment that was worth marks.
		I have no life.
		It is tough to bond with your class when you're here for 4 months at a time. It took a long time for my class to get to know each other.
		Learned a lot, work very hard, actually managed to have fun!
		Not enough women in Engineering!
		Not enough women, hence baring socially. Women make stuff happen and hence increase overall fun settings.
		To develop it is better to do it out of the classroom, so a lighter workload would allow for more time to spend getting involved in sports and clubs.
		too much work in Engineering. I don't get to socialize as much.
		Waterloo seems to be riding on its reputation of the co-op system. Instructors for the most part have demonstrated a lack of interest in teaching, or a condescending nature to their class.
		Academics-Top Notch, Co-op: needs more connection between classes & work. Social: My class was anti-social and lacked any feeling of community. I feel that I really missed out because of this as compared to friends who went into different programs.
		We have way too much. 8 months schools & work terms would make things easier.
		Well, if you have to specialize in something, it might as well be academics. I don't know why the social scene is so miserable though.
		University could do more to enhance cohesion and camaraderie between different classes and departments of engineering-we're all very isolated from one another.
		We have far too much busy work...it's a waste of time. Teach us something in that time instead.
		The social aspect of university is extremely more important than the academic side.
Mechanical	F	Din not have OAC so was overwhelmed 1st year was from US so did not know anyone at Waterloo. Workload kept me from becoming close with people on Res. 1sy year bad.
	M	A little bit disappointing to see how many profs consider the teaching part of their profession to be an imposition.

		Academically it seems throughout the years, the style of teaching is to just keep pumping information a lot of times there is no time to learn the material.
		Bomber was fun.
		Engineering limits your interaction with other faculty members. You work with the same group of people since first year.
		Had wished we had more hands on design projects.
		I lost interest in second year.
		If I could do it again, I wouldn't have taken engineering. The only good things were that co-op paid reasonably well and I made some excellent friends.
		Social life is what made university bearable everything else sucked.
		The co-op program was the only reason I came to Waterloo, and because I am now way ahead of the game because of my co-op experiences. I enjoyed Waterloo as it is a relatively small campus, which seems social and friendly.
		Too much theory!!!More application is needed.
		Waterloo is a very competitive academic school, found this took away from social life.
		What is the story with the uppity, snotty professors that don't even acknowledge your existence. In other universities students call their profs by their first name and occasionally go out for a beer--definitely not mine.
		Course load can be very stressful, unhealthy. More emphasis on labs & projects would be interesting.

#4 Indicate the quality of support provided by the following:

Profs/Lecturers

Count of Profs/Lecturers		Gender		Grand Total
Department	Profs/Lecturers	F	M	
Chemical	Excellent	3	3	6
	Very Good	11	9	20
	Good	7	6	13
	Poor	5	4	9
	Unacceptable	1	1	2
Chemical Total		27	23	50
Civil	Excellent	1	7	8
	Very Good	9	12	21
	Good	3	5	8
	Poor	1	5	6
	Unacceptable	1		1
	No Answer	2		2
Civil Total		17	29	46
ECE	Excellent	2	4	6
	Very Good	9	24	33
	Good	7	28	35
	Poor	4	13	17
	Unacceptable		2	2
	No Answer		4	4
ECE Total		22	75	97
Mechanical	Excellent	1	7	8
	Very Good	8	23	31
	Good		20	20
	Poor	1	8	9
	Unacceptable	1	1	2
	No Answer		1	1
Mechanical Total		11	60	71
Systems Design	Excellent		2	2
	Very Good	3	3	6
	Good	1	1	2
	Poor	2	2	4
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support provided by Profs/Lecturers

Count of Profs/Lecturers Importance		Gender		Grand Total
Department	Profs/Lecturers Importance	F	M	
Chemical	High	22	18	40
	Low	3	2	5
	No Answer	2	3	5
Chemical Total		27	23	50
Civil	High	15	25	40
	Low		1	1
	No Answer	2	3	5
Civil Total		17	29	46
ECE	High	18	60	78
	Low	1	8	9
	No Answer	3	7	10
ECE Total		22	75	97
Mechanical	High	9	44	53
	Low		6	6
	No Answer	2	10	12
Mechanical Total		11	60	71
Systems Design	High	6	8	14
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Lab Instructors

Count of Lab Instructors		Gender		Grand Total
Department	Lab Instructors	F	M	
Chemical	Excellent	3	2	5
	Very Good	6	9	15
	Good	11	6	17
	Poor	5	4	9
	Unacceptable	2	2	4
	Chemical Total		27	23
Civil	Excellent	3	4	7
	Very Good	8	15	23
	Good	3	5	8
	Poor	2	3	5
	Unacceptable		2	2
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	1	6	7
	Very Good	6	21	27
	Good	12	30	42
	Poor	2	15	17
	Unacceptable	1	1	2
	No Answer		2	2
ECE Total		22	75	97
Mechanical	Excellent		2	2
	Very Good	6	21	27
	Good	5	21	26
	Poor		13	13
	Unacceptable		3	3
Mechanical Total		11	60	71
Systems Design	Excellent	1	1	2
	Very Good	2	2	4
	Good	2	3	5
	Poor	1	2	3
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support provided by Lab Instructors

Count of Lab Instructors Importance		Gender		Grand Total
Department	Lab Instructors Importance	F	M	
Chemical	High	21	12	33
	Low	4	8	12
	No Answer	2	3	5
Chemical Total		27	23	50
Civil	High	12	15	27
	Low	2	10	12
	No Answer	3	4	7
Civil Total		17	29	46
ECE	High	13	43	56
	Low	4	25	29
	No Answer	5	7	12
ECE Total		22	75	97
Mechanical	High	6	28	34
	Low	3	23	26
	No Answer	2	9	11
Mechanical Total		11	60	71
Systems Design	High	4	6	10
	Low	2	2	4
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Teaching Assistants

Count of TA's		Gender		Grand Total
Department	TA's	F	M	
Chemical	Excellent	1	2	3
	Very Good	4	10	14
	Good	13	6	19
	Poor	8	2	10
	Unacceptable	1	3	4
	Chemical Total		27	23
Civil	Excellent		1	1
	Very Good	6	8	14
	Good	9	13	22
	Poor	1	5	6
	Unacceptable		2	2
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	4	7	11
	Very Good	4	18	22
	Good	7	29	36
	Poor	4	16	20
	Unacceptable	2	2	4
	No Answer	1	3	4
ECE Total		22	75	97
Mechanical	Excellent		2	2
	Very Good	6	17	23
	Good	3	26	29
	Poor		13	13
	Unacceptable	2	2	4
Mechanical Total		11	60	71
Systems Design	Very Good	1	1	2
	Good	2	3	5
	Poor	3	4	7
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support offered by Teaching Assistants

Count of TA's Importance		Gender		Grand Total
Department	TA's Importance	F	M	
Chemical	High	18	18	36
	Low	7	2	9
	No Answer	2	3	5
Chemical Total		27	23	50
Civil	High	13	16	29
	Low	1	9	10
	No Answer	3	4	7
Civil Total		17	29	46
ECE	High	12	44	56
	Low	5	24	29
	No Answer	5	7	12
ECE Total		22	75	97
Mechanical	High	8	38	46
	Low	1	13	14
	No Answer	2	9	11
Mechanical Total		11	60	71
Systems Design	High	2	5	7
	Low	4	3	7
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Classmates

Count of Classmates		Gender		Grand Total
Department	Classmates	F	M	
Chemical	Excellent	11	7	18
	Very Good	4	10	14
	Good	9	2	11
	Poor	2	4	6
	Unacceptable	1		1
Chemical Total		27	23	50
Civil	Excellent	5	10	15
	Very Good	8	8	16
	Good	1	5	6
	Poor		2	2
	Unacceptable	2	4	6
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	12	22	34
	Very Good	6	23	29
	Good	3	8	11
	Poor	1	15	16
	Unacceptable		5	5
	No Answer		2	2
ECE Total		22	75	97
Mechanical	Excellent	8	23	31
	Very Good	1	14	15
	Good		10	10
	Poor		6	6
	Unacceptable	2	7	9
Mechanical Total		11	60	71
Systems Design	Excellent	2	5	7
	Very Good	1		1
	Good	1	1	2
	Poor	2		2
	Unacceptable		2	2
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support provided by Classmates

Count of Classmates

Importance		Gender		Grand Total
Department	Classmates Importance	F	M	
Chemical	High	20	19	39
	Low	5	1	6
	No Answer	2	3	5
Chemical Total		27	23	50
Civil	High	10	21	31
	Low	5	4	9
	No Answer	2	4	6
Civil Total		17	29	46
ECE	High	17	65	82
	Low	1	4	5
	No Answer	4	6	10
ECE Total		22	75	97
Mechanical	High	9	45	54
	Low		6	6
	No Answer	2	9	11
Mechanical Total		11	60	71
Systems Design	High	4	7	11
	Low	2		2
	No Answer		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Engineering Society

Count of Eng Soc		Gender		Grand Total
Department	Eng Soc	F	M	
Chemical	Excellent	1		1
	Very Good	3	8	11
	Good	8	5	13
	Poor	10	5	15
	Unacceptable	3	2	5
	No Answer	2	3	5
Chemical Total		27	23	50
Civil	Excellent	2	2	4
	Very Good	2	1	3
	Good	6	11	17
	Poor	4	9	13
	Unacceptable	1	4	5
	No Answer	2	2	4
Civil Total		17	29	46
ECE	Excellent	1	7	8
	Very Good	2	9	11
	Good	4	19	23
	Poor	5	19	24
	Unacceptable	8	16	24
	No Answer	2	5	7
ECE Total		22	75	97
Mechanical	Excellent		7	7
	Very Good	4	9	13
	Good	3	13	16
	Poor	2	16	18
	Unacceptable	1	11	12
	No Answer	1	4	5
Mechanical Total		11	60	71
Systems Design	Very Good		1	1
	Good	2	5	7
	Poor	3	1	4
	Unacceptable	1	2	3
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support received by the Engineering Society

Count of Eng Soc Importance		Gender		Grand Total
Department	Eng Soc Importance	F	M	
Chemical	High	2	5	7
	Low	23	14	37
	No Answer	2	4	6
Chemical Total		27	23	50
Civil	High	2	5	7
	Low	13	19	32
	No Answer	2	5	7
Civil Total		17	29	46
ECE	High	2	11	13
	Low	16	56	72
	No Answer	4	8	12
ECE Total		22	75	97
Mechanical	High	2	7	9
	Low	7	43	50
	No Answer	2	10	12
Mechanical Total		11	60	71
Systems Design	High		2	2
	Low	6	5	11
	No Answer		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Student Project Groups

Count of SPG		Gender		Grand Total
Department	SPG	F	M	
Chemical	Excellent	6	3	9
	Very Good	4	8	12
	Good	8	6	14
	Poor	8	2	10
	Unacceptable	1	1	2
	No Answer		3	3
Chemical Total		27	23	50
Civil	0		1	1
	Excellent	1	4	5
	Very Good	6	8	14
	Good	6	9	15
	Poor	1	6	7
	Unacceptable	1	1	2
No Answer	2		2	
Civil Total		17	29	46
ECE	Excellent	1	6	7
	Very Good	3	10	13
	Good	8	22	30
	Poor	6	16	22
	Unacceptable	2	16	18
	No Answer	2	5	7
ECE Total		22	75	97
Mechanical	Excellent	2	5	7
	Very Good	5	17	22
	Good	2	17	19
	Poor	2	12	14
	Unacceptable		6	6
	No Answer		3	3
Mechanical Total		11	60	71
Systems Design	Excellent	1	1	2
	Very Good	2	2	4
	Good	3	2	5
	Poor		2	2
	Unacceptable		1	1
	No Answer		1	1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support received from Student Project Groups

Count of SPG Importance		Gender		Grand Total
Department	SPG Importance	F	M	
Chemical	High	12	10	22
	Low	13	8	21
	No Answer	2	5	7
Chemical Total		27	23	50
Civil	High	4	10	14
	Low	9	14	23
	No Answer	4	5	9
Civil Total		17	29	46
ECE	High	9	27	36
	Low	9	41	50
	No Answer	4	7	11
ECE Total		22	75	97
Mechanical	High	5	25	30
	Low	4	25	29
	No Answer	2	10	12
Mechanical Total		11	60	71
Systems Design	High	4	3	7
	Low	2	4	6
	No Answer		2	2
Systems Design Total		6	9	15
Grand Total		83	196	279

Co-op Office

Count of Co-op Office		Gender		Grand Total
Department	Co-op Office	F	M	
Chemical	Excellent	3		3
	Very Good	2	4	6
	Good	7	4	11
	Poor	7	10	17
	Unacceptable	7	2	9
	No Answer	1	3	4
Chemical Total		27	23	50
Civil	Excellent	1		1
	Very Good	1	8	9
	Good	8	9	17
	Poor	3	7	10
	Unacceptable	3	5	8
	No Answer	1		1
Civil Total		17	29	46
ECE	Excellent	5	6	11
	Very Good	3	11	14
	Good	4	16	20
	Poor	2	19	21
	Unacceptable	7	19	26
	No Answer	1	4	5
ECE Total		22	75	97
Mechanical	Excellent		3	3
	Very Good	5	8	13
	Good	4	21	25
	Poor	1	16	17
	Unacceptable	1	11	12
	No Answer		1	1
Mechanical Total		11	60	71
Systems Design	Very Good		3	3
	Good	3	2	5
	Poor	1	1	2
	Unacceptable	1	3	4
	No Answer	1		1
Systems Design Total		6	9	15
Grand Total		83	196	279

Importance of support received from the co-op Office

Count of Co-op Office
Importance

Department	Co-op Office Importance	Gender		Grand Total
		F	M	
Chemical	High	16	14	30
	Low	9	5	14
	No Answer	2	4	6
Chemical Total		27	23	50
Civil	High	9	11	20
	Low	5	13	18
	No Answer	3	5	8
Civil Total		17	29	46
ECE	High	13	36	49
	Low	5	31	36
	No Answer	4	8	12
ECE Total		22	75	97
Mechanical	High	5	28	33
	Low	4	23	27
	No Answer	2	9	11
Mechanical Total		11	60	71
Systems Design	High	1	4	5
	Low	4	3	7
	No Answer	1	2	3
Systems Design Total		6	9	15
Grand Total		83	196	279

#5 Are there barriers to women in engineering in the following areas:

Barriers before arriving at University

Department	Gender	Before University	BU Comments	Total
Chemical	F	yes	Females threatened by male dominated field.	1
			Less girls generally even apply, social dynamics of high school course selection.	1
			You hear lots about engineering being an all male field	1
			Lots of guidance councillors in high school will simply say "you can't do it".	1
			Not typical career choice, not encouraged by guidance councillors.	1
			Stereotypes	1
			Engineering is not "solid" enough in high school. Programs such as environmental engineering are very appealing to women, but many don't know it exists or what it is.	1
			Fellow students may not think engineering is appropriate. Say things like "what are you thinking?, too much work!"	1
		yes Total		9
		No		17
		No Total		17
		No Answer		1
		No Answer Total		1
	F Total			27
	M	yes	General convention that engineering is better for males.	1
			Image of engineering as male dominated.	1
			Need to make technical subjects in school more applicable to women. I don't know how though. Maybe in the types of problem solving questions posed.	1
			Not encouraged to pursue engineering as a career.	1
			Stereotypes from secondary school	1
			Tell them company's love to hire women it raises their male/female ratios	1
			Not stereotypical career	1
		yes Total		9
		No	Admissions are relatively blind if you meet the criteria you get in.	
			Didn't think about it.	
			Equal rights.	
			Gender equality is becoming more of a reality.	
			I haven't heard examples for classmates about any barriers.	
		No Total		11
		No Answer		
		No Answer Total		3
	M Total			23
Chemical Total				50
Civil	F	yes	Hard to get accurate picture of number of females in program or to hear their experiences.	

			There seems to be little understanding of what engineering entails, what jobs are available etc..	
		yes Total		5
		No	No I got here.	
		No Total		9
		No Answer		
		No Answer Total		3
	F Total			17
	M	yes	An upbringing in a society that is essentially paternalistic requires a change that most people would consider anarchy, but the opposite of a patriarchy is not matriarchy but fraternity: EQUALITY.	
			Female students are not generally encouraged to pursue careers in technical areas.	
			I don't think a lot of women know what engineering is.	
			Not enough advertisement of women in engineering.	
			Profession appears to be mainly male orientated.	
			Society in general encourages women to participate in care giving environments not engineering.	
			Stereotypes-typical jobs for "women" and "men".	
		yes Total		10
		No	Everyone is open to take and excel at prerequisite high school courses.	
			Maybe a bit due to social pressures to pursue other things.	
			My high school OAC classes had equal amounts of both male & female students.	
			Senior women engineering at high school co-op placement.	
		No Total		18
		No Answer		
		No Answer Total		1
	M Total			29
Civil Total				46
ECE	F	yes	Even good female math students often struggle with physics for some reason.	
			Many obstacles to applying b/c Engineering usually deemed completely male dominated	
			Most females don't apply to engineering, so you feel alone.	
			Not encouraged into engineering in high school as a good career choice for females	
			Not many friends consider engineering.	
			Prevailing belief that engineers are men. They believe that engineering is a physically demanding field.	
			Stigma of looking "unpopular" for getting high marks.	
		yes Total		7
		No	Depends, I personally felt no barriers but I am sure others have encountered situations in which they weren't given positive outlook on engineering.	
			Equal number of males & females in Math & Science classes	
			Teachers, counsellors all very supportive for women in engineering.	
			I think I got a lot of encouragement actually from university during open day etc..	

			I was encouraged to do whatever I wanted, other people may have felt that they had barriers, but I did/t experience this.	
		No Total		13
		No Answer		
		No Answer Total		2
	F Total			22
	M	yes	Females don't want to attend university with typical engineers. Geek alert! Stereotypes about engineers. General perception that engineering is for men.	
			It is not the norm for women to go into engineering. They are often pushed into science by teachers and family.	
			Lots of geeks go to Waterloo, its expensive	
			Negative views of a "geeky" profession.	
			Not encouraged in math & Sciences.	
			Not enough role models or encouragement in high school to pursue engineering.	
			People's perception it's not cool, too difficult a guy thing, tomboy image.	
			Perception of engineering as male dominated.	
			Recruiting especially for girls at high schools.	
			Social acceptance	
			Social Barriers, i.e. cultural norms. Note: this applies to only certain people.	
			Social Pressure.	
			Social Stereo types	
			Societal bias towards discouraging women going into technical fields.	
			Societal impression of engineering as typically male dominated. Some psych students at UW have shown that some women feel they have the extra burden of representing all women. This is a tough burden.	
			Stereo types by other students in high school	
			Stereotypes.	
			The same barriers to men plus there are cultural barriers that have to do with how parents raise their children.	
			There is a perception that engineering is guys domain.	
			Stereotypes	
			Seemed the stereotypes that barriers should exist.	
			Socially-i.e.. many not be fully seen as an area for women to go into from the various forms of socialization.	
			There is a stereotype of engineering being a guys program.	
			Engineering often perceived as geeky.	
		yes Total		28
		No	The system has become equal at the grassroots level.	
		No Total		26
		No Answer	Image in certain fields that it is nerdy or dorky. Also an engineering culture that is heavy in testosterone, egg. Engsoc, drinking.	
			Hard to say. You might try talking to women in high school after graduating to find out what they are. It seems likely that it is a social phenomenon, not much with in the control of the university.	

		No Answer Total		21
	M Total			75
ECE Total				97
Mechanical	F	yes	Lack of knowledge of what each discipline of engineering is kind of overwhelmed by male population. More info would have been good.	
		yes Total		2
		No	Many universities are trying hard to promote Women in Engineering, so women are encouraged to attend.	
		No Total		8
		No Answer		
		No Answer Total		1
	F Total			11
	M	yes	Free flights out for out of province students like myself for campus day.	
			Initiation ceremony dealing with "the tool", phallic symbol constantly driven into our minds, constant reminder that engineering is, in the end dominated as we worship the tool.	
			Just that there are not many here.	
			Profession as a male dominated profession.	
			Social Expectations.	
			Socially uncommon, typically male dominated.	
			Very little encouragement to enter technical schools.	
			Perhaps some stereotypes/attitudes of older people that are discouraging.	
			Predominately male field, professors who teach to males.	
			Not typically thought of as engineers--predominantly male.	
			In terms of providing support & encouragement to females in associated courses before engineering.	
			People think engineering (mechanical) are mostly for guys, during the University open day making emphasis on environment for women was said not enough female washrooms.	
		yes Total		19
		No	If you work hard academically they should be able to get in with no barriers.	
			Women treated equally.	
		No Total		31
		No Answer	I'm a guy, I don't care.	
			No more than I faced.	
		No Answer Total		10
	M Total			60
Mechanical Total				71
Systems Design	F	yes	TV, pop culture, peer pressure.	
		yes Total		1
		No		
		No Total		4
		No Answer	Bias-Counsellors/teachers in high school	
		No Answer Total		1
	F Total			6

	M	yes	No targeted advertising.	
			Not enough targeting of University admission programs	
			Lack of visible role models, aversion to math in high school.	
		yes Total		4
		No		
		No Total		3
		No Answer		
		No Answer Total		2
	M Total			9
Systems Design Total				15
Yes Grand Total				94
No Grand Total				140
No Answer Grand Total				45
Grand Total				279

Barriers while attending university

Department	Gender	While University	WU Comments	Total
Chemical	F	yes	Low populations of girls.	
			Some professors do not seem to take female students seriously.	
		yes Total		5
		No	Everything equal.	
			Well not really.	
		No Total		21
		No Answer		
		No Answer Total		1
	F Total			27
	M	yes	Not enough other girls in engineering.	
			Sure, same as men's its life.	
			Boring/outspoken feminists who don't like engineering tendency and social activities.	
		yes Total		3
		No	At least not in Chemical.	
			The women I have met here are more than capable enough to do the necessary work.	
			Again, in chem. especially the ratio of men: women is essentially equal.	
		No Total		17
		No Answer		
		No Answer Total		3
	M Total			23
Chemical Total				50
Civil	F	yes	I found the support of other females was lacking for female students. My experience was that often the male (profs, TA's, boss) were more helpful.	
			Some profs/ TA's are not as comfortable around females and it shows (not saying harassment just less support). More female profs earlier on would help.	
			Occasionally people in authority are unsupportive solely because I'm female	
			Sometimes tough to get respect from profs/get them to take your questions seriously.	
		yes Total		6
		No		
		No Total		8
		No Answer		
		No Answer Total		3
	F Total			17
	M	yes	A guy I saw yesterday was wearing a shirt that said " Your little princess is my little whore", and then there is women of Engineering calendar pornography as student screen savers.	

			I think a lot of male engineers makes this an uncomfortable environment for women.	
			Many civil/enviro jobs employ women only as support staff; some companies concerned about creditability in the field; "old boys" mentality in some companies	
			Sexism	
			student groups	
		yes Total		5
		No	Again same courses and marking.	
			My core university classes has equal amounts of women as well, in fact sometimes profs actually preferred helping the female students.	
		No Total		22
		No Answer		
		No Answer Total		2
	M Total			29
Civil Total				46
ECE	F	yes	Disappropriate number of males & females	
			Especially in ECE a male dominated environment, there isn't much support to encourage or help us. It makes the learning environment difficult and does not promote co-operation.	
			Some social standards, in general I have not found any major barriers, as long as someone does the work they will do well, but some people do make it a bit harder for girls.	
			Too few female in classes, makes it intimidating for new females. It is a vicious cycle.	
			Stereotypes and surprises from male students that a female can be as smart or smarter than them	
			Some classmates routinely use disparaging comments towards and about women.	
			Classmates mostly men, profs teach to males, to fit in you got to act/think like tomboys.	
		yes Total		8
		No	Female engineers can get support from other female engineers or students.	
		No Total		12
		No Answer		
		No Answer Total		2
	F Total			22
	M	yes	Generally small population.	
			Girls in engineering feel isolated because of the lack of female classmates.	
			It's a chicken & egg problem, but low % of women students would likely make it harder if women in the program would like support from other women.and classes are very isolated, so harder to get outside contacts.	
			Male dominated working & studying environments (like going to the gym)	
			Most females can't relate to and don't enjoy nerdy engineers.	
			Not a lot of females in engineering programs to be friends with.	

			Also the overwhelming feeling of being outnumbered 10-1.	
			Some classmates look down on them.	
			High number of males vs. females can be intimidating for females.	
		yes Total		11
		No	Engineering guys more than receptive to female presence in university.	
			In a University environment no but while in co-op observing some companies yes.	
			Seems pretty accepting here at UW	
			Women get awesome co-op placements.	
		No Total		41
		No Answer		
		No Answer Total		23
	M Total			75
ECE Total				97
Mechanical	F	yes	Some degrading people within project groups at school and sometimes at work.	
			A lot of student are male dominated, machine shop--male.	
		yes Total		2
		No	Once we get here we are all equals.	
		No Total		9
	F Total			11
	M	yes	More school spirit days like free food.	
			no	
			Ratio of males to females.	
			Smaller population of women at UW.	
			Not many women	
		yes Total		8
		No	Everyone here seemed to be open to women in Engineering.	
			Seems fine I guess.	
		No Total		42
		No Answer	Never paid attention.	
			Stereotypes on women in mechanical engineering much stronger than other disciplines.	
		No Answer Total		10
	M Total			60
Mechanical Total				71
Systems Design	F	yes	Less support from other females.	
			Males sometimes not too open to ideas coming from female conservative.	
			Some co-op companies hesitate to hire women for plant environments	
			Many more females left the program proportionately than males during the program	
		yes Total		4
		No		

		No Total		2
	F Total			6
	M	yes	low % of female undergrads.	
			Male dominated faculty.	
		yes Total		2
		No		
		No Total		4
		No Answer	Not qualified to answer.	
		No Answer Total		3
	M Total			9
Systems Design Total				15
Yes Grand Total				54
No Grand Total				178
No Answer Grand Total				47
Grand Total				279

Barriers after University

Department	Gender	After University	AU Comments	Total
Chemical	F	yes	Depending on which industry you work in.	
			Some employers believe that women cannot handle "heavy duty" work.	
			Working in manufacturing environment with all males.	
			Still "old boys club" in some companies particularly oil & gas	
			Many plant workers etc. are male + women sometimes are not taken seriously. Lots of "old boys clubs"	
			May not think females are appropriate in certain environments (e.g.. Mining)	
		yes Total		8
		No		
		No Total		13
		No Answer	Full time job competition.	
		No Answer Total		6
	F Total			27
	M	yes	May be some sexism in the workplace (probably mostly by older males).	
			Potentially since the older generation of engineers was primarily male and that men may be doing the hiring.	
			Still a "baby-boomer" reality.	
			Sure same as men's its life.	
		yes Total		6
		No	A manager said he was specifically looking for women on one of my co-ops.	
			Good opportunity.	
		No Total		13
		No Answer	Old-school ways of thinking, which I think will change only over time	
		No Answer Total		4
	M Total			23
Chemical Total				50
Civil	F	yes	difficult to find work as an engineer part time especially if you want to raise a family.	
			I've witnessed women being passed over for promotions	
			some companies still prefer to hire men over women	
			Some job, especially on job outside sites are not likely to hire women.	
			Some jobs still seem to be held for males applicants.	
			Some work places still exhibit sexist attitudes. This affects co-op experience as well.	
			Still "old fashion" mindset in work place, maternity leave punishment.	
		yes Total		9
		No		
		No Total		4

		No Answer		
		No Answer Total		4
	F Total			17
	M	yes	Family	1
			I can foresee female engineers having difficulty after graduating. Quite often engineers are talking with suppliers & trades as well as "old school" engineers who may not take women seriously.	
			Many civil job employers have the impressions that women don't want to do some of the jobs.	
			Prejudice	
			I would imagine a women would have a harder time getting respect from workplaces, particularly construction sites.	
		yes Total		9
		No		
		No Total		16
		No Answer	I'll let you know when I get there	
		No Answer Total		4
	M Total			29
Civil Total				46
ECE	F	yes	Engineering considered a manly profession.	
			Need to overcome certain prejudices with male supervisors tend to hire people like them.	
			Prejudice in the workforce.	
			Some employers prefer males (full time employment)(personal experience through co-op interview).	
			In the job place-there is still underlying male dominance in Engineering workplace.	
			Some employers have privately indicated a reluctance to hire young women because of problems associated with maternal leave.	
		yes Total		8
		No	Employers seem to want more women at work.	
			I have not graduated, so its tough to say. Again there will always be those who feel women don't belong in engineering.	
			Many employers are trying to hire more females.	
			No job I've ever had has ever made me feel incapable, in fact its almost easier being female as its easy to ask questions, people are always more friendly & open, treated me fairly.	
		No Total		11
		No Answer	Not sure yet	
		No Answer Total		3
	F Total			22
	M	yes	"old boys" effect within upper management at many companies I co-oped at.	
			Having babies.	
			Male dominated industry.	
			Male dominated work force.	
			Most females don't want to work with nerdy engineers.	
			Possible same prejudice in hiring-probably not as pronounced.	

			Raising children and house chores.	
			Some perception does seem to exist.	
			Still male employees from the "old school" of thought.	
			Unequal pay rates.	
			Some societal misconceptions.	
		yes Total		17
		No	I'm probably thinking that the world is ideal from my UW bubble.	
			Lack of women in workforce means novelty and demand are high.	
		No Total		35
		No Answer	Don't know yet.	
			Not sure yet.	
		No Answer Total		23
	M Total			75
ECE Total				97
Mechanical	F	Yes	Employment options, certain jobs in the field that prefer males over females due to travelling and industry.	
			Men hitting on women in the workplace, making them feel uncomfortable.	
			Most Engineering managers are men.	
		yes Total		5
		No	Many companies are eager to promote women in engineering and hire women.	
		No Total		4
		No Answer		
		No Answer Total		2
	F Total			11
	M	yes	Can't identify specifically but very few females in work force (from what I have seen).	
			Engineering seems to be a male dominated industry, but changing as more women graduate.	
			Male dominated profession so women may have trouble in some areas (men favoured over women for jobs for example).	
			Probably still a slight bias since industry has more males in it (product of history)	
			Smaller population of women in engineering workforce.	
			Same as above, stereotypes.	
			A lot of shop floor workers are pretty chauvinistic.	
		yes Total		14
		No	Equal Opportunities.	
			More opportunities because they are a minority	
		No Total		34
		No Answer	No idea.	
			No need to care.	
			Probably	
		No Answer Total		12
	M Total			60
Mechanical Total				71

Systems Design	F	yes	Need to work harder than male to prove your knowledge, with...	
			see above	
			Singling out in jobs.	
			women in business no engineering in	
		yes Total		4
		No		
		No Total		2
	F Total			6
	M	yes	Glass ceiling?!?	
			Salaries but its getting better.	
		yes Total		2
		No		4
		No Total		4
		No Answer	Not qualified to answer	1
		No Answer Total		3
	M Total			9
Systems Design Total				15
Yes Grand Total				82
No Grand Total				136
No Answer Grand Total				61
Grand Total				279

Suggestions for Improvement

Chemical	F	High school promotion Grade 9
		I think it will change in the future on its own.
		Provide more information to high school students about engineering and details about specific disciplines and what opportunities exist upon graduation and for work terms.
		Have female engineers visit high schools to promote women in engineering and give examples of things that are open to women. Make everyone more aware of women in Engineering.
	M	Keep IRS, change co-op.
		More proactive than passive approach.
		More public relation work.
		My class has over 40 girls, so I do not see an environment where barriers exist, therefore I do not feel I am in a position to provide valuable suggestions.
		Wait it out the acceptance of women in engineering and in society in general is much greater among the current university generation. As we reach the higher ranks women will face fewer barriers.
		Questions for survey should be directed it unisex audience.
		Encourage at high school & last year in Eng level (reinforcement).
Civil	F	Allow for formal complaint procedure in co-op atmosphere if problems occur.
		Educate the masses
		Have more females as profs in early years.
		involve more women faculty members in non-academic involvement
		More events that don't focus on drinking...being surrounded by a group of drunk guys can be very intimidating
		Profession needs to be promoted more to young people in high school young women in particular.
		I found it difficult being a WIE on work terms especially in industry. It would be helpful to provide coaching to women on how to cope with challenges of a male dominated work force.
	M	Education and knowledge of engineering before entering university
		Provide men in Engineering scholarships not just women.
		We need a paradigm shift that emphasizes gender equality and values the diversity that women bring, I'm not sure how to facilitate that shift.
		Women should let the employer know during work terms what they would like to be doing in the future.
		Perhaps some sensitivity training to sexist/racist language (i.e. the term whore is derogatory....
		Subtle changes, shift in political powers to change the capitalistic tendency of only rewarding LABOUR (Max's modes of production--what is valuable to society?) Why do women tend to be in jobs that society does not reward.
		Unfortunately some changes are made over time More women in the work place can improve that.
ECE	F	Decrease the course load especially in 3A & 3B. Large work load does not necessarily mean students can learn better. On the other hand, students can appreciate the course contents better, more effectively, when course load is manageable. More electives
		Its difficult to change how a profession is viewed by society.
		More scholarships for women. Good promotion of program in high schools by women.
		More socially relevant aspects in academic material, Engineers Without Borders should be incorporated.
		Need more social events, even just among the class.
		Reduce workload in 3B. Projects are forcing students to not go to class, and thus missing out on a lot of concepts.

		I don't think there is only problems with the environment here for women maybe in other engineering programs?).
		Visit high schools actively recruit. Bring cool demos that will catch attention offer a summer program similar to U of Alberta's WISEST program to expose females to engineering and its applications.
		Profs controlling class more effectively. Get rid of rankings to make classes less competitive. Make lab credit, a non-credit so they are a learning experience as opposed to mark generators., it will encourage co-operation.
		Strong female role models. Networking with other women.
		Encourage well rounded graduates. Provide some women to be involved in the CUBE & Waterloo Space Society, these offered me just as much knowledge as classes did. Scholarships etc. do not motivate students to be involved as they are all mark orientated. C
	M	Admit more females.
		Advertise more? Have female engineers at University open houses? Or university fairs?
		Attract more rounded students, both male and female and eliminate the "nerd" factor that plagues engineering.
		Break down stereotype.
		Care more for the student's needs instead of screwing them over.
		Family and such have to be more supportive.
		Have male engineers be more open minded towards women in engineering.
		High school outreach efforts, more public role models.
		Just continue to accept the best candidates independent of sex. Anything else is sexism and unfair.
		Lessen societal stigma for Women in Engineering. I don't think there is anything that the University can do, society needs to evolve.
		No. I think they didn't come because they are not interested.
		Not really sure. Get enough female engineers out there and advertise Waterloo as a school with a lot of female engineers as you might make a difference.
		Deal with industry and show your students this. It will dissuade his students taking on the initial stereotype and help more women consider a career path is viable in engineering.
		Have more female role models in engineering that are visible at an earlier age.
		Advertise more to equality-if advertising strictly to women could see another imbalance in engineering school as has happened in University in general.
Mechanical	F	More info sessions to girls before university. Women engineering activities to prepare women in workplaces.
		Sororities
	M	Engineering may be a bit intimidating for women.
		Improve the environment.
		It seems that some of our female classmates shouldn't be here based on marks, but fill the "female" quota.
		Maybe we need more female profs.
		Nothing gender specific.
		Orientation and information via doing high schools, to develop women encouragement in engineering
		Question: Are university standards the same across the board? It sometimes seems like they may be lowered for some girls.
		Wait...
		Keep promoting women and treat side of the industry will continue to strengthen.
		Change the image of "the tool". Possibly eliminate it as a mascot.
Systems Design	F	Counselling for women as a group in the class. Encouraging women in general, Women role models in engineering.

Looking back what is the one thing you wish you knew before coming to Engineering at UW.

Chemical	F	Amount of initiative needed in pursuing profs & co-op jobs and URSA's.
		I wish I had known better time management skills.
		It was fun, not geeky, lots of support.
		Lack of support from many but not all profs. Profs that don't communicate in English very well.
		More detail about the program.
		That people here are arrogant.
		That the quality of teaching may not be better than high school even though tuition is so high.
		The amount of work involved.
		The tough work load.
		Time management skills.
		Programming Language
		The social environment is lacking excitement.
		More info regarding each discipline. More info about options available (i.e. environmental)
		Study Skill, getting some work experience for my resume when getting my first job.
		I'd apparently chosen Fem Eng.
	M	"real" quality of co-op program
		Actual co-op salary data--was told by UW rep that co-op job would provide enough money to survive entire 4 month academic term.
		Difficulty level of University.
		Difficulty of first year, much better after 2B.
		Difficulty of first year.
		How much more enjoyable your experience is if you take an interest in class material and react with professors.
		It may be the best, but there are still things that need improvement.
		That 5 years was such a long time.
		That finding a co-op job could be so hard...I would have started searching much sooner.
		That it is not that easy to find a job, and applying for jobs takes lots of time.
		There is nothing so far that I wish I knew before coming here.
		Workload is silly high, needs to be evened out.
		The amount of work and sacrifice required, the opportunities to get involved.
Civil	F	How much money it was going to cost.
		I wish I had a better understanding of the program I entered into.
		Not much.
		That there is Engineering diplomas offered in College.
		What my program actually included. The realities of what to expect in co-op, workload.
		Work load first year is killer.
		Environmental Engineering does not include very much environmental studies
		I wish that I had a better understanding of exactly what the program would include and the career it would prepare me for. I wish that I had known that the workload would be so heavy that it would prevent me from participating in extracurricular.
	M	About co-op.
		All of the available support for undergraduate; encouraging open discourse with faculty/administration.
		Campus life/Off-campus life.
		Career after graduation, workload, work environment, salaries.

		Difficulty and time consumption of academics.
		Good reputation; no women (very few)
		How it would feel studying the subjects within the program
		How little engineers study the intrinsic value of the environment.
		I struggled through work & didn't consult with the TA & profs when I was having difficulty.
		I wish I knew that there would be so few opportunities for recreation-due to time and environmental constraints.
		If eng. Was really what I wanted to do, explore more options. Knew how rigorous the program is.
		More about careers of Engineers.
		That is was so expensive.
		That the school was all about business and no school spirit and that tuition was so high.
		That there was going to be such a big tuition increase.
		That there wasn't enough going to be much of a social life with engineering.
		Typical jobs encountered in each field. A focus on the qualities desired for the engineers.
		That engineering students don't get reading week.
		The extremely high work load.
		More info about all the different types of engineering (i.e. geological, environ-civil...)
		Campus life while fun, felt engineering was serrated at times. CSC classes were good way to
ECE	F	At least half the stuff we learn, I will never apply in my job.
		Class sizes and ratio of women to men in program.
		Expectations from Engineering.
		How hard it would be.
		Lack of maturity of some of the male students.
		More about the gotiens, possibilities of options in other minors.
		No time to socialize.
		Too many boys.
		We had no time to have a social life (no chance to bond with peer students nor any time to contribute to the community (no time for clubs, charity or volunteer work).
		It is near impossible to get involved in extra-curricular activities in third year. Barely no electives.
		That I should have known/prepared in the last year of high school for the exact same material to appear in last year.
		That the main reason for UW's good reputation is because of its co-op program, not for its academic program or teaching.
		I wish I knew that assignments and projects will never be finished perfectly or even at all. In other words I wish I knew the workload.
		How much segregation there was in Engineering. Other than residence, the only people that I was exposed regularly to was those in ECE especially electrical.
		How few females there are in ECE. How obnoxious the males in the class are.
		Maybe more academically prepared. A big learning curve at the beginning, didn't know much about programming....but it was a good experience.
		Nothing really, UW was a learning experience nothing could have prepared me for it as it was a totally different environment than what I was used to. Should have had a better understanding of what engineering was, exactly what the program entailed.
	M	Engineers in general, are very boring socially.
		Grad school at UW does not give priority to their own undergrad students except you have full funding.
		How important it was to know people from other faculties.
		How lacking it is socially.
		How lane it is socially.

	How little social life (fun) there is here.
	How much more work is required than other engineering schools specifically Queens & U of T.
	How poor some of the teaching is...I had higher expectations.
	I should have been more prepared for the heavy workload.
	Importance and benefits of co-op; it was a nice surprise.
	Importance of school spirit.
	Involve yourself with school committees clubs and activities before you are done. Meet some girls in residence cause there are few in engineering.
	Level of competition for marks as affects co-op.
	Level of cut-throat competition.
	Lots of preparation is required if you want to go to grad school.
	More about nature of program, careers it prepared you for. Focus on HW, less on software. Number of hours per week generally. Quality of teaching.
	More specific about what ECE is about (i.e. what courses are taken, list of projects and labs etc.)
	no
	Not enough women in Engineering ¹
	Quality of Profs.
	Should study hard.
	Start working before coming to University, that will make finding a job easier.
	Start Working on stuff early.
	Study in first year.
	That research at the university was more important than teaching undergrads. Co-op was fantastic, but the academics was poor.
	That school spirit was really low.
	That there are a lot of incompetent profs, resulting in students learning a lot of material on their own.
	That there is no girls in any class.
	That there is no room for electives like economy minors.
	That there were no women in my program.
	That this university sucks.
	That waterloo is weak in teaching the fundamentals.
	The complete and total lack of females in engineering. There is also a great deal of racial segregation between groups of people. Coming from a high school with a diverse group of students, this was very unexpected.
	The number of hours.
	The time commitment for labs & how bad the social atmosphere is.
	There would be no women, none! I knew it would be bad but...throw me a bone.
	Variability in structural quality, which electives were interesting, useful.
	What engineering is.
	What engineering was really about.
	What type of jobs in this area.
	Workload.
	Lack of non-engineering electives (better to make our engineers more well-rounded by allowing them to take a wide variety of courses.
	Maybe a better understanding of the different degrees and programs. I still didn't know what systems does. I made fun right device for me (ECE), but I don't think it was in general for our class.
	That my class was so full of anti-social weirdo's.
	Engineering is freaking hard and expensive.
	Workload/curriculum

		That it wouldn't foster creativity of professionalism.
Mechanical	F	I wish I knew how little money we make.
		Research more about the field.
		That I would have no life...I think I was not prepared in terms of my computer skills.
	M	Disadvantages to co-op
		Exactly what would be done in class--thought there would be more hands on work.
		Greater understanding of the day-to-day work of an engineer.
		Housing related stuff, how unprepared my Manitoba high school experience left me.
		How few women there were.
		How hard it would be.
		If I knew how bad of a social life UW has to offer I would have gone somewhere else!
		It takes No Answer.5 hours to travel from Montreal to Waterloo.
		Knew more about student atmosphere/social life at Waterloo, and how hard it was.
		Male/female ratio.
		More about the city itself, more specifically about my program rather than engineering overall.
		More detailed descriptions of what we will learn in the 4 years. What are we capable afterward. It was to general.
		More knowledge of engineering jobs.
		No reading week.
		none
		Not that I knew everything, but everything revealed I feel was necessary to the experience
		Nothing, ignorance is bliss. Maybe more knowledge about electives.
		Research field.
		Some work experience in various industries related to our major for mechanical i.e. automotive
		That 5 years is a lot longer than it seems.
		That engineering is 5% "engineering and 95% project management.
		That engineering was more theory than anything practical.
		That engineering was so dam tedious and boring, so many details, who the hell cares???
		That it is as demanding as it is, and everyone in engineering is a geek.
		That so many students are self centered and give UW a bad appearance to employers by coming to co-op jobs with a high and mighty attitude. This must change, UW is losing employers because of it.
		That the hands on experience was greatly lacking.
		That tuition costs wouldn't have gone up as much and they did.
		The 40 hours per week of lecture in 1st year and the university expect an hr of study per hour of lecture that totals a ridiculous 80 hrs per week.
		The state of teaching is not that great.
		What the job prospects are, type of jobs you can get, their salary.
		Working overnights for projects, lab reports, case studies and that some assignments are not marked.
		Would have prepared for the fact that UW's academic standards don't seem to match its reputation.
		Lack of social opportunities at the school.
		I would have liked a better idea of what it was like.
		That not all co-op coordinators cared about the students as much as the information package I received in high school claimed. Example: Out of six work terms I saw my co-op coordinator once during a work term.
		The low quality of facilities, and the better universities in Ontario.
		The kind of jobs that most engineers do i.e. not everyone becomes an astronaut or space engineer, but most become maintenance engineers.

		Don't make enough money, co-op jobs good department bad, not very many graduate jobs on job mine.
Systems Design	F	Be able to handle the work load.
		That life would be insane due t moving a million times
		That I had seen a list of 1st and second year courses at least. I didn't know about the course calendar.
		More about co-op. the alternating work/study is a terrible program, doesn't allow settling and making connections, hard to move every 4 months physically & psychologically.
	M	How important it is to find a project you can get behind and support it, at the cost of other opportunities through a longer period of time than 4 months.
		How important it is to live with friends versus random people.
		Male to female ratio.
		The truth about engineering.
		What systems design was?
		Extra curricular at UW

What could the University of Waterloo and/or Faculty of Engineering do to attract more females into Engineering?

Chemical	F	Advertise social aspects.	
		Describe the groups directed towards women, i.e. WIE	
		Develop interest in younger generations.	
		Difficult to say, its very much a cultural & personal thing.	
		Emphasize that women can go into engineering, especially comp eng and mech eng; traditionally male dominated.	
		Have more female activity leader.	
		In school advertising.	
		Job opportunities in the future.	
		More advertising.	
		Promote more.	
		Promote Women in Engineering at high schools/ local malls.	
		Show examples of career/jobs that would be more attractive to women.	
		Ryerson University holds a Women in Engineering summer camp for high school students, I attended and found it extremely informative/enlightening.	
		M	Better awareness in high schools
			Doing fine as is; maybe more focus on ECE
Female recruiters at high school.			
Incentives/ Awards in high school.			
No idea...probably increase environmental programs since these seem to be more heavily female populated.			
		Nothing is required. There are no barriers other than those conceived by applicants, so if any thing indicate that there are no barriers. Differential treatment should not be a concern	
		Its not about whether your F or M, in these days I don't think there is a difference. So if a women wants to study engineering she can. But I don't know what else you can do.	
		Already excellent work by faculty-keep it up Chem. eng.	
		Give more money, lots of girls in chem. eng.	
Civil	F	Accurate info.	
		Female representation in Engineering who can effectively communicate with high school students, i.e. well rounded type of people.	
		Give high School students more info regarding possible jobs after graduation.	
		Has to be encouraged at high school level female recruiters???	
		I don't know I went into Engineering because I knew what I wanted to be all through high school, some people just don't want to be engineers.	
		More support groups for female engineers.	
		Scholarships	
		Send more women in Engineering to high Schools to represent the school and the program.	
		Make a information campaign in high school with women (an engineer, a student in engineering for ex.) to show female that you can manage both a family and a job...etc.. Underline the social relation in the engineering instead of technical aspect.	
		Promote it more--more high school visits sending female engineers.	
		M	Ad, promote women to be engineer in all engineering fields.
			Advertise
advertisement			
Better marketing			
		Doing extra seminars and workshops for high schools.	

		Have more women engineering students present to high school students.
		I don't know.
		I wish I knew
		Incentives, scholarships.
		More projects possible geared towards women in engineering.
		No
		No idea, I have been wondering that too.
		Profile the accomplishments of women on a wider scale.
		Promote more, invite successful women engineers to provide speakers to younger kids.
		Scholarships/bursaries, invitations to attend classes, better presentations in high schools.
		Don't seem so "desperate" to increase female enrolment. Maybe be seen as reverse discrimination by some. Spread word of the other disciplines other than traditionally male dominated ones.
		Promotion by professors (women like Tighe) to high schools. Encouragement & scholarships even if minimal nominal value.
ECE	F	Female mentors in Engineering. Advertise "regular" female image in Engineering.
		Have more scholarships available for women.
		Having more female students to begin with
		I think more women will naturally become more attracted once the economy improves.
		If females knew that they can stand out from the crowd in engineering and the great coop opportunities they could get from being a female engineer, I think they would be more likely to enrol.
		More advertisement of humanistic side of engineering. Show Engineers Without Borders
		More social events that promotes a socially friendly environment for females.
		Special grants/scholarships.
		Use female recruiters. Have female students talk about their experiences.
		Stimulate females to think analytically at an early age.
		More public demos to show the exciting possibilities within engineering. Maybe monetary incentives as well such as bursaries, scholarships etc..
		Provide women only workshops in engineering. Include marks that women typically do better in for admittance criteria, i.e. chemistry, biology etc....
		Have females from engineering (students) talk to high school students. Bring in more female professors for first-year courses.
		Emphasize teamwork, project work, engineering management. Girls want to know engineering is not an isolated desk job.
		Promote a more co-operative, mutually respected environment.
		Publicize itself more. I think it should aim to attract men and women no preferential treatment in scholarships-people who deserve them should get them. There should be more focus on activities outside of just marks.
	M	Advertise more with high schools. Scholarships for females. Advertise engineering co-op program.
		Advertise that there are a lot of bright, attractive and lonely men here.
		Advertising.
		Avon lady? Tupperware Parties? I have no idea.
		Better education/information about the profession.
		Better role models, less male faculty, focus on hardcore labs & work etc.
		Campaign to attract them.
		Chocolate? I think its something that has to be changed on a societal level.
		Doing a great job already, can't really think of anything.
		Drop the math and science requirements, oh yeah that's engineering.
		Get rid of the geeky image. Show me to have a full social life. Show that its not all math work.
		Host "Americas Next Top Model Who is also an Engineer" or "Desperate Engineering Housewives"

		I don't know.
		Improve the social atmosphere. Guys are more likely to accept being loners.
		Increase funding to student body. Co-ed activities & services that are more attractive to all.
		Increase the social factor-no one wants to go to school for 5 years with 90% socially inept people.
		It depends what the barriers are. You might provide statistics on how many women are in engineering, as women won't feel it's a "mans" profession.
		Its one of the best programs in Canada.
		More support programs.
		No comment.
		Nothing they will come if they want to.
		Nothing to obvious...it'll happen on its own (otherwise may promote thoughts of why material promotions being geared to females leading to questions of it really is ok to be female engineer...counterproductive.
		Print brochures featuring women in engineering. Have women engineers visit high school in Grade 9.
		Promise of many hot engineering guys.
		Promote female recruitment.
		Recruiting/money.
		Reduce the "intimidation" factor when showcasing engineering to potential students.
		Scholarships.
		Show more women in pamphlets, presentation
		Stories from female graduates "success stories"
		Try to counter stereotypes when recruiting concentrate on targeting females.
		You need to make the environment less intimidating; make it evident that you support women in engineering by hiring more female faculty profs and other staff.
		Advertise more to the female population in high school decrease stereotypical views.
		Attack stereotype and issues of women doing well in management in engineering industries. Show more students examples of where this stereotype has been deflated.
		Not exactly sure. A friendlier environment would certainly help.
		Not sure maybe when visiting high schools could show how equal and accepting UW is. Info session for female potential students with key women in Engineering (Female profs, June Lowe, etc.)
		They need to be introduced early on, and "male stereotypes" barriers be broken time. They need to be introduced early on and "male stereo types" barriers can come down.
		Work against social stereotypes in the community at large.
		Get hot male celebrities to promote engineering.
		Grant entrance scholarships to outstanding female in engineering.
		Less work-load, quotas.
Mechanical	F	Attract better looking men to the faculty.
		I think that we are doing a lot already by promoting the program in high school presentations.
		Info sessions at various high schools by women engineers.
		Let women know that they are treated equally here, and they do not have to feat feeling different once they get here.
	M	Advertise the amount of males.
		Better looking guys.
		Give more scholarships to women from men
		Have a reading week.
		High school talks.
		I am sure there are a lot of things we can do, but I can't think of any right now.
		I don't know any females who want to study engineering.

		I don't know in general, I don't attract them either. Other than my fiancé.
		I'm not sure but please hurry!
		Improve social life.
		Information and advertisement in high schools.
		Invite female graduates or female engineers in the work force to speak about their engineering experience.
		More female supporting groups.
		More females enrolled will attract others to apply for the school
		More open houses and tours, etc.
		More support structures.
		Perhaps more female professors in certain faculties of Engineering.
		Present more statistics supporting numbers of women in engineering increasing if it is.
		Scholarship
		Scholarships for women.
		Set the number of female and male who enter into each program.
		Show off talent of current women in Engineering.
		They can't really. They must rely on society in general to convince women to enter more technical fields.
		Need to get out to high schools about opportunities women have with an education in engineering.
		Show successful women who have graduated from engineering.
		Make their tuition cheaper.
		Is it necessary? If the females aren't interested then don't force it. Also, out of high school, a lot of students don't know what they want to do. Post Secondary becomes more of a social event and as such more females in engineering would attract more females
		There is already a lot just that the mech eng does not have a lot of female. Other such as comp & chem. eng got a lot already.
		Joint humour engineering with other business majors. i.e. engineering- economics, or engineering-Business management.
Systems Design	F	Demonstrate that there is support for women, the programs in place and proof that it works.
		More female role models.
	M	Additional examples of female alumni.
		Attract female faculty; either as TA's or professors
		Enlarge programs like Systems to accept more females.
		More advertising, with good female role models.

Would you recommend UW Engineering to other females?

Department	Gender	Recommend	Total
Chemical	F	Yes	23
		No	1
		No Answer	3
	M	Yes	17
		No	3
		No Answer	3
Chemical Total			50
Civil	F	Yes	17
	M	Yes	25
		No	1
		No Answer	3
Civil Total			46
ECE	F	Yes	16
		No	5
		No Answer	1
	M	Yes	37
		No	13
		No Answer	25
ECE Total			97
Mechanical	F	Yes	10
		No Answer	1
	M	Yes	49
		No	5
		No Answer	6
Mechanical Total			71
Systems Design	F	Yes	4
		No	1
		No Answer	1
	M	Yes	5
		No	2
		No Answer	2
Systems Design Total			15

By Gender Only:

F	Yes	70
	No	7
	No Answer	6
F Total		83
M	Yes	133
	No	24
	No Answer	39
M Total		196
Grand Total		279