



# The CIPWIE Mentorship Program

A Review of the 2016-17 CIPWIE Mentorship Program

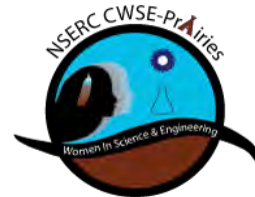
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# Acknowledgements

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We would like to acknowledge and thank the many female engineers who so generously volunteered their time to participate in this Program. They did so with enthusiasm and commitment, contributing many ideas and suggestions to help improve the program. We couldn't have done it without them!

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# Introduction

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The Committee for Increasing the Participation of Women in Engineering (CIPWIE) is committed to assisting Engineers Geoscientists Manitoba in achieving the 30 by 30 goal set by Engineers Canada as well as to **understanding and supporting the needs of Manitoba's female engineering cohort. The Mentorship Program supports women during their engineering education and as they progress through their careers. Participants are engaged in a formal mentoring relationship with opportunities ask questions about the profession and share insights into what it's like to be an Engineer. The Mentorship Program aims to aid in the retentions of Manitoba's female engineering talent, while also increasing diversity in the engineering profession.**

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## Why Mentor Women Engineers?

The 30 by 30 goal is Engineers Canada's commitment to raise the percentage of newly licensed engineers that are women to 30% by the year 2030 [1]. This national goal has been endorsed by all 12 Canadian engineering regulatory bodies (including Engineers Geoscientists Manitoba), and many engineering schools (including the Faculty of Engineering at the University of Manitoba).

Currently, the percentage of female students enrolled at the University of Manitoba in undergraduate engineering programs sits at approximately 22% [2], while the percentage of female professional engineers in Manitoba is approximately 9% [3]. This data shows that while there is still work to do to increase the recruitment of females into engineering education programs, there is also a strong need to support women during their engineering education and as they progress through their careers in order to increase retention in the profession.

The Committee for Increasing the Participation of Women in Engineering (CIPWIE), an operating committee of Engineers Geoscientists Manitoba, is committed to assisting the association in achieving the 30 by 30 goal **and to better understand and support the needs of Manitoba's female engineering cohort. Through committee meetings involving female engineers from a variety of industry sectors, CIPWIE identified mentorship as a potential solution to help address the female engineering retention issue and move Manitoba towards achieving the 30 by 30 goal. Mentorship has long been known as an effective way to support skill development and learning, and can lead to increased career satisfaction and retention. Successful mentoring relationships can also extend well beyond knowledge transfer and develop into life-long relationships that are mutually beneficial to all involved [4].**

While mentorship programs do exist within Manitoba's engineering industry (for example the Association of Consulting Engineering Companies (ACEC) Manitoba mentorship program), there are no programs offered specifically by Engineers Geoscientists Manitoba or the University of Manitoba that are open to all engineering disciplines/industries. To this end, CIPWIE developed a student-driven Mentorship Program that pairs female engineering students with female Members-in-Training (MITs) and female professional engineers with the goal of providing a tri-mentorship model that will assist all participants with an opportunity to see what a career in engineering could look like and to help them expand their professional network.

This report provides details on the CIPWIE Mentorship Program, including results and feedback obtained, and recommendations for future program improvements.

# The Program

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The CIPWIE Mentorship Program (hereafter referred to as "the Program") was developed and coordinated by three members of the CIPWIE committee. The 2016-17 offering of the Program grouped 46 female undergraduate engineering students (referred to as "Students"), with 26 female members-in-training (referred to as "Protégées") and 35 female professional engineers (referred to as "Mentors") in a tri-party mentorship model. 35 Mentorship teams were formed.

Teams met in person during four formal mentorship events scheduled throughout the academic year from October 2016 to March 2017. Additional contact within the teams, via phone, email, or in person, was recommended between events, at a frequency of at least once per month.

## Program Goals

For the Student, this program was expected to provide:

- Insight into what it's like to be a working engineer;
- A picture of how they can see themselves in an engineering career;
- An understanding of specific engineering disciplines;
- An opportunity to network with professional engineers.

For the Protégée, this program was expected to provide:

- Insight into what it's like to be a working professional engineer;
- Experience in mentoring, coaching, and developing interpersonal relationships;
- The opportunity to be a role model;
- An opportunity to network with professional engineers

For the Mentor, this program is expected to provide:

- An opportunity to share their passion for their chosen field of engineering and their career;
- Experience in mentoring, coaching, and developing interpersonal relationships;
- The opportunity to be a role model;
- A medium for influencing the future of the profession.

## Mentorship Matching

Mentorship matching is a vital component of the success of a mentoring relationship. Application survey results showed that Students and Protégées preferred to be matched based on common technical interests (i.e. engineering discipline). To this end, the matching of Students, Protégées, and Mentors was conducted based on the following parameters:

- Technical area of interest (i.e. engineering discipline)
- Career path – technical, construction, project management, business development, academia)
- Extra-curricular activities

Preference was given to Students who had not participated in this or other mentorship programs previously, or had minimal engineering work experience.

During the matching process, 35 mentorship teams were formed. Due to uneven numbers of applicants in each category, some teams had 2 students and no protégées. Based on this, 107 people were admitted into the program.

# Participant Demographics

## The Students

Student applicants were required to be female undergraduate engineering students registered for the current academic year in the Faculty of Engineering at the University of Manitoba, entering at least their 2<sup>nd</sup> year of study. Students were also required a willingness to embrace the role of mentee by making a diligent effort to connect with their Mentorship Team.

Student recruitment began in early September 2016 through a targeted email to all 2<sup>nd</sup>-5<sup>th</sup> year female engineering students and advertisement through the faculty student society (UMES) as well as posters hung throughout the Faculty of Engineering. At the close of recruitment, we had received 53 Student applications.

In total, 53 Student applications were received. Figure 1 shows the distribution of students based on their year of study and Figure 2 shows the breakdown of Student applicants by discipline.

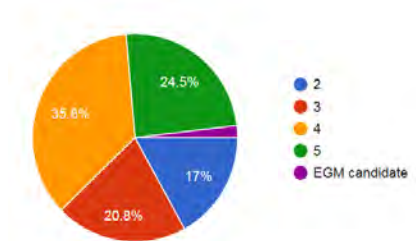


Figure 1: Students by Year of Study

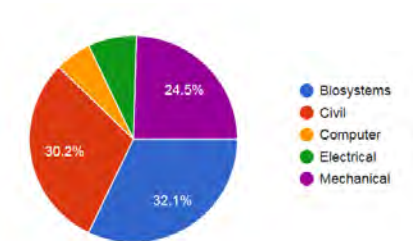


Figure 2: Students by Discipline of Study

Figure 3 illustrates the various responses to the application question “What career path do you envision for yourself at this point in time?” (note that multiple selections were allowed). 33 students (62.3% of all applicants) indicated that they were “Unsure – that’s why I’m applying to the Mentorship Program”. This is not surprising and reiterates the need for a mentorship program that helps provide a perspective of what careers in engineering actually look like.

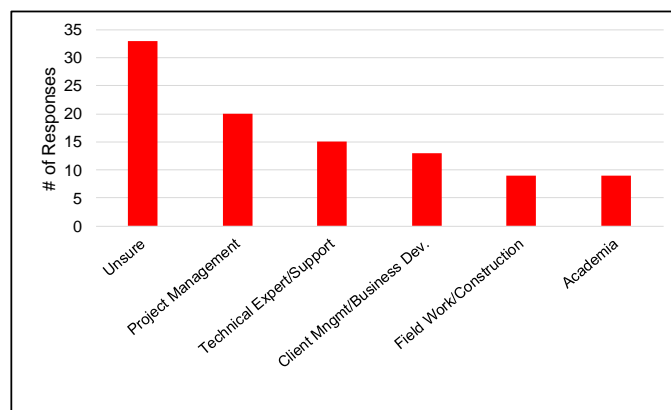


Figure 3: What career path do you envision for yourself at this point in time?

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*“As I approach the end of my program I must begin thinking about the transition from being a student, to being a professional in industry. I see the CIPWIE program as an opportunity to connect with experienced individuals who can offer their insight and advice, with similar professional interests to help me develop the means to make career positive decisions.”*  
– CIPWIE Mentorship Program Student

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## The Protégées

Protégée applicants were required to be registered with Engineers Geoscientists Manitoba as female Member-in-Training (MITs). Applicants needed to be willing to embrace the role of protégée by making a diligent effort to connect with both their student and their mentor.

Recruitment of Protégées for the program began in August 2016 through the Engineers Geoscientists Manitoba's weekly e-newsletter, an email directed at female Engineers Geoscientists Manitoba members, and via personal contacts. At the close of recruitment, we had received 26 Protégée application.

Protégée applicants averaged approximately 2.5 years of engineering work experience since graduation and came from the various disciplines outlined in Figure 4.

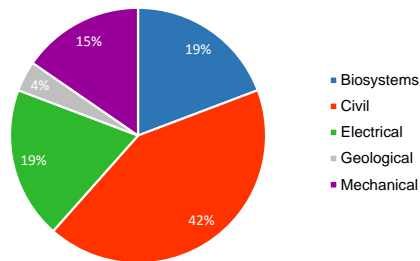


Figure 4: Protégées by Discipline of Study

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*"Having worked in the field about two years, it has definitely become more apparent how important it is to have support as a female in a male-dominated profession. Even aside from the gender factor, it is very challenging to enter the professional workplace with minimal practical experience. It is up to each individual to find ways to develop their skills/experience and mentoring is always a great opportunity to do so." – CIPWIE Mentorship Program Protégée*

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## The Mentors

The Program required that Mentor applicants be female Professional Engineers registered with Engineers Geoscientists Manitoba, and have a willingness to embrace the role of mentor by making a diligent effort to make themselves available to their mentorship team.

Recruitment of Mentors for the program began in August 2016 through the Engineers Geoscientists Manitoba's weekly e-newsletter, an email directed at female Engineers Geoscientists Manitoba members, and via personal contacts. At the close of recruitment, we had received 35 Mentor applications.

Figure 5 illustrates the applicants by years of engineering work experience and Figure 6 illustrates their engineering discipline.

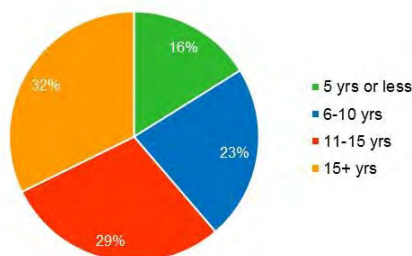


Figure 5: Mentors by Years of Experience

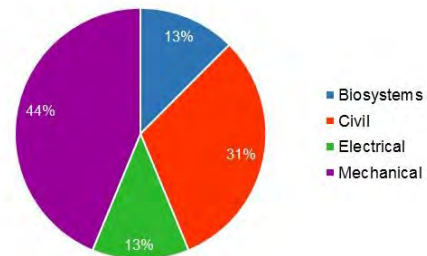


Figure 6: Mentors by Discipline of Study

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*"While informal, I have had a lot of help starting career and I feel that it is time to give back to my profession. Women make great engineers so anything I can do to help increase our numbers, I will try. Also, often being the only woman in a working group of men can sometimes be a lonely experience, so I feel sharing experiences and advice to help new members feel more comfortable while the establish their own careers will help them." – CIPWIE Mentorship Program Mentor*

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# The Events

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The Mentorship Program featured four structured events. These formal events allow the Mentorship Teams to meet face-to-face with not only each other, but also with other participants in the program allowing individuals to broaden their professional network. All events were held in the evening from approximately 5:30-8:30pm to accommodate both work and class schedules and included food and beverages.

## Event #1: Kick-off Event

The first formal Program event was held in the Engineering and Information Technology Complex (EITC) Atrium at the University of Manitoba on October 13, 2016. The event included networking, a short Mentorship Team design challenge as an ice-breaker, and time for the teams to set expectations for the relationship and complete the Mentorship Program Agreement.



## Event #2: “Managing Transitions – It’s All About You” Panel Discussion

Event #2 was held on November 24, 2016 and included ‘networking bingo’ exercise followed by a panel discussion focusing on the transitions people face throughout their career. The panel included discussions on the transition from school to the workplace, the transition from MIT to P.Eng./P.Geo., transitions with respect to changes in jobs and in work responsibilities, and transitions to and from work for parenthood and sick leave.

Panelists for the session included:

- Danielle-Magda Salem, EIT from Manitoba Infrastructure
- Dawn Nedohin-Macek, P.Eng., from Manitoba Hydro
- Lindsay Melvin, P.Eng., from Manitoba Hydro
- Harmony McKinney-Bumstead, CET, Manitoba Infrastructure

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*“I thought that the panel was really great. I like the “transitions” theme, as I think it fostered some conversation about topics that are maybe a little less typical than what you’d here in a normal conversation. I think it allowed for people to cover a broad area of topics (we went from wages, to switching jobs, to not switching jobs, etc.) and I just really enjoyed it.” – CIPWIE Mentorship Program Participant*

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### Event #3: Technical Tours

Visiting companies or engineering related venues is a great way for young engineers to learn more about **what it's like** in a workplace. Due to the large size of the group, coordinating one common tour was not feasible, so three separate technical tours were organized for the first three weeks of February. Teams were asked to sign up for the tour that most interested them (or fit best with their schedule). For teams that couldn't attend the same tour, efforts were made to ensure that individuals were paired with another team for the tour and networking. Tours included:

- Manitoba Electrical Museum
- Price Industries
- Royal Canadian Aviation Museum of Western Canada



### Event #4: DeLuca's Cooking Studio

The final Program event was held at DeLuca's Cooking Studio on March 23, 2017. This event was designed to provide networking opportunities for Program participants and to allow the Mentorship Teams to close-out their formal relationship. Because the Faculty of Agriculture is contemplating a similar mentorship program, two agriculture students, one instructor, and Dr. Annemieke Farenhorst the NSERC CWSE Chair) were invited to attend the event. Participants were treated to a cooking demonstration followed by a delicious meal!



# Feedback

Program participants were given the opportunity to provide ongoing feedback and recommendations for the Mentorship Program via an electronic survey that sent out after each event. At the end of the program, a Post Program Survey was administered to collect feedback on the overall program. The response rate for the Post Program survey was 60% and was spread nearly equally amongst Students, Protégées, and Mentors.

An indicator of Program success can be found by examining participants perceived **compatibility** or “fit” with their Mentorship Team. When questioned about the satisfaction with Mentorship Team fit on a scale of 1-5 (with 1 being poor fit and 5 being ideal fit), 80.5% of respondents indicated that their match was 4/5 or better. Only two respondents felt that their team fit was poor.

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*“The CIPWIE Mentorship Program provided me with an opportunity to connect with a mentor with valuable, relevant experience. She gave me advice on professional matters and provided a clearer perspective of what it is like to be a professional female engineer.” – CIPWIE Mentorship Program Participant*

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When participants were asked “Approximately how many times have you met with or spoken to your Mentorship team in total, including at any formal Mentorship Program events?” the average number of connections was 6.2 (with a low of 0 and a high of 25). It is clear from the data that some teams connected more frequently than others, but the data suggests that most teams connected approximately once per month. As a follow-up to this, participants were also asked “Which of the following most closely describes how you feel about the frequency of your interactions with your Mentorship team?” The results are shown in Figure 7. While 41% of respondents were happy with the frequency of communication, the remaining respondents felt that more interaction was required (with the exception of one respondent who indicated they would prefer less interaction). To try to understand these numbers, the Program Coordinators reviewed the attendances sheets from each event and noted that there were several participants that missed 2 or more formal events. The majority of these absences were Students and could indicate either a lack of commitment to the program or scheduling issues. This will be addressed for the 2017/18 program by instituting a Student Orientation Session to go over the expectations for the Program. Please see the Summary and Recommendations section for further details.



Figure 7: Participant Responses to Frequency of Mentorship Team Interaction

To better understand how Mentorship Teams connected with one another, the participants were asked “*How have you interacted with your team?*” Outside of the formal events, the most common method for team interaction was via email. In person meetings (outside of the formal events), and office tours, and telephone conversations were also popular methods for connection. Email communication has the advantage of being easy to use and suitable for dealing with time constraints. However, face-to-face interactions allow for the use of non-verbal communication which can help strengthen relationships [5]. Using a combination of both face-to-face and virtual (email, chat group) mentoring strategies allows participants to take advantage of the benefits of both styles of interaction.

When asked “*What was your favourite thing about the CIPWIE Mentorship Program?*” a common theme was that the Program helped create a sense of community. It is very unusual to have nearly 100 female engineers in room at any given time and participants appreciated getting to know the local female engineering network.

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*“I have had no female P.Eng. mentors in my work experience and this program gave me that connection I was missing out on.” – CIPWIE Mentorship Program Participant*

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The tri-mentorship model was viewed very favorably by the participants. When participants were asked “*Would you reapply for the CIPWIE Mentorship Program in future years?*” 80% indicated ‘yes’ with an additional 13% indicating ‘maybe’. In addition, when asked if participants planned to stay in contact with their Mentorship Teams outside of the program, 67.2% said that they were “likely” to or “definitely” would. From the perspective of the Program Coordinators these numbers indicate the success of the CIPWIE Mentorship Program and suggest a continuation of participant interest in not only mentorship, but in the engineering profession itself.

# Summary and Recommendations

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Encouraging women to remain in the engineering profession begins while they are still in school but must also continue on into the workplace. By creating mentorship teams consisting of a student, a member-in-training (Protégée) and a Professional Engineer (Mentor), the Program has been able to connect women at all stages of their career. Students were given an opportunity to better visualize what a career in the engineering profession might look like and how they might fit in. Protégées were given an opportunity to develop their mentorship skills as well as learn from their Mentors. All participants were able to expand their professional networks with women of a wide range of experience and from all areas of engineering.

As noted by the feedback regarding the frequency of interaction with Mentorship Teams and event attendance logs, there were some participants in the program (mostly Students) who did not appear to be fully committed. Commitment to the program for Mentors and Protégées will be re-iterated at the Mentor/Protégée Orientation session held at the beginning of the program. Plans for 2017/18 will also include a mandatory Student Orientation session that will go over expectations (prompt replies to meeting notices, suggestions for getting in touch with your Mentorship Team, etc.) and ensure commitment to the Program.

In the Post-Program Survey participants were asked to provide recommendations to improve the Program. Several people suggested offering additional scheduled meet-up events. Additional events may be considered for 2017/18 based on budget availability. Another common theme was a request for more ideas and suggestions for informal mentorship activities that could be carried out between formal events. This suggestion will be addressed through the development of a Mentorship Handbook that will be made available to teams in the 2017/18 Program.

Many people indicated that they appreciated the technical tours but suggested that more industrial locations are selected for next year's program (two of the 2016/17 technical tours were of museums).

During the pilot offering of the Program in 2015/16, a photographer was hired to take both candid shots and headshots of participants during the wind-up event. This was a great opportunity to gather photos for promotion of the Program and was also a nice takeaway for participants. It is recommended that a photographer is hired for the final event in next year's program.

Surveys and participant feedback will continue to be an important part of the Program going forward and it is recommended that the Program Coordinators consult with a University of Manitoba faculty member who is versed in qualitative research methods to ensure that surveys capture data that helps to validate and assess Program effectiveness.

## References

- [1] 30 by 30. (2017, August 7). Retrieved from <https://engineerscanada.ca/diversity/women-in-engineering/30-by-30>
- [2] Undergraduate Students by Program or Area of Study, Full/Part Status, and Gender, Fall Term 2016 (2016, November 1). Retrieved from [http://umanitoba.ca/admin/oia/media/enrol\\_UG\\_area\\_of\\_study\\_MF\\_f16.pdf](http://umanitoba.ca/admin/oia/media/enrol_UG_area_of_study_MF_f16.pdf)
- [3] Michelle Wadelius. "30 by 30 and Women in Engineering in Manitoba, *The Keystone Professional*, pp. 36-37, Autumn 2015. Available from: <http://www.apegm.mb.ca/pdf/Keystone/15Autumn.pdf>
- [4] Michael Garringer, Patti MacRae, and Susan Weinberger. *Going the Distance: A Guide to Building Lasting Relationships in Mentoring Programs*. Folsom, CA: Dennis Wakeland, 2005, 51 pp. (ISBN: 0-89354-073-0)
- [5] Laura Jerpi. Face-to-Face vs. Virtual Mentoring. (2016, May 7). Retrieved from <http://work.chron.com/facetoface-vs-virtual-mentoring-3464.html>