Member in Training (MIT)/Supervisor/Mentor
PROGRESS REPORT FORM
Instructions to MIT, Supervisor and Mentor (If Applicable)

Note: All MITs are required to have a professional member take responsibility for their work. If the MIT is a GIT, he/she must have either a P.Geo or a P.Eng. with geological expertise take responsibility for his/her work. If the MIT is an EIT, he/she must have a professional engineer take responsibility for his/her work. If the direct supervisor is not a professional member then the MIT is required to find a professional member either from inside or outside the company to act as a mentor and to take professional responsibility for their work.

Note: This form is to be submitted by the MIT, their direct supervisor and their mentor (if applicable) for every six month employment period, or/and whenever there is a change in supervision/employment. The following procedure should be followed:

1. ***MIT completes his/her portion of this report including the Professional development and Volunteer service reports downloaded from the APEGM website.***
2. ***MIT submits the report to APEGM, keeps a copy and submits one copy each to supervisor and mentor (if applicable)***
3. ***Supervisor completes the Supervisor/Mentor declaration shown on the next page, completes his/her portion of the report and submits the entire report to APEGM.***
4. ***Mentor (if applicable) completes the Supervisor/Mentor declaration shown on the next page, completes his/her portion of the report and submits the entire report to APEGM.***

If supervisor and/ or mentor portions of the report can be completed at the same time as the MIT's report it would be acceptable for the report to be submitted as one (or two) document(s). If, however, the report cannot be submitted on time (within 8 months of the start of the reporting period), it is advisable that the MIT submit a copy to APEGM before sending it to his/her supervisor and his/her mentor (if applicable). Otherwise, the MIT will be penalized for late reporting.

APEGM encourages collaborative reporting between the MIT, supervisor and the mentor, however, should the supervisor or mentor prefer to have his or her reports remain confidential from the MIT we ask that it be so indicated in the supervisor or mentor declaration on the following page.
In the event that there are two or more consecutive supervisors (or two or more consecutive mentors) for one six month reporting period – e.g. one supervisor for 4 months and another supervisor for the next 2 months, more than one progress report will be required to cover the 6 month period in question.
***Note to Master's and PhD students**: Experience credit can be claimed for project and thesis work only. Generally, the candidate should submit his/her progress report for every six month period, and have the supervisor indicate the number of months of equivalent to full time thesis work that was done during those six months.*
After January 1,2004, APEGM is subject to PIPEDA. For details on APEGM's Privacy Policy in general and how it relates to this report in particular please see www.apegm.mb.ca after January 1,2004.

Declarations of Supervisor or Mentor **PLEASE READ & SIGN**

Section A: to be completed by a professional member registered in the location of the MIT's place of employment

A1. I _____ have been registered as a professional engineer☐ geoscientist ☐ (check one) since
(Name)
_____ in _____ with expertise in _____.
(year) *(province)* *(discipline)*

A2. I have taken professional responsibility for the quality of the MIT's work as described in this report for the period from _____ to _____. See Note 1**. Signed:** _____ **Date:** _____
(d/m/y) *(d/m/y)*

Section B: to be completed by a supervisor if the supervisor is **not** a professional member registered in the location of the MIT's place of employment

B1. I _____ am qualified to take responsibility for the quality of the MIT's work by reason of the following:
_____.

B2. I have taken responsibility for the quality of the MIT's work as described in this report for the period from _____ to
(d/m/y)
_____. See Note 1. **Signed:** _____ **Date:** _____
(d/m/y)

Section C: THIS SECTION MUST BE COMPLETED BY THE SUPERVISOR & THE PROFESSIONAL MEMBER

C1. In an effort to ensure the timely assessment of this report, I will endeavor to complete my portion of this report no later than a month after receiving the report from the MIT.
☐ Yes ☐ No If the answer is No, please provide a reason: _____

C2. In my opinion, the MIT has completed _____ months equivalent to full time experience. See Note 2.
It is important that you answer this question.

C3. I do ☐ or do not ☐ authorize APEGM to provide information contained in this report or a copy of this report to the MIT. See Note 3. **Signed:** _____ **Date:** _____

Note 1: The reporting period should cover the same period as the MIT reporting period shown on item 1. If the reporting period for which you have taken professional responsibility does not correspond to the MIT reporting period shown on item 1 of the progress report please explain why: _____.

Note 2: normal vacation, bank time, family leave, for which the employee is entitled. is not discounted. Overtime is not counted extra. If, however, the MIT has been absent for a significant amount of time due to special circumstances - disability leave for example, this time should be discounted from the full time number of months of experience. If the MIT has made sub-standard progress in this time frame, the number of months given may also be discounted, if you feel it is warranted. If the number of months is discounted for any reason, please provide an explanation in section 10. If the time is discounted for any reason, APEGM reserves the right to indicate the fact that the time was discounted to the MIT and to indicate that the time was discounted at the request of the supervisor/mentor. ***Note to supervisors of Master's and PhD students****: Experience credit can be claimed for project and thesis work only. Generally, the candidate should submit his/her progress report for every six month period, and have the supervisor indicate the number of months of equivalent to full time thesis work that was done during these six months.*

Note 3: If authorization is not granted, for our information purposes only and recognizing that you are not obligated to do so, please provide a reason for withholding this authorization: _____.

Note 4: Each supervisor and mentor should complete a separate declaration page.

1. MIT to complete all portions of this report except for areas specifically marked "to be completed by supervisor/mentor".

Note: Before completing this form, please familiarize yourself with APEGM's document entitled "Nature of Acceptable Work Experience". An important aspect of this program is progression in responsibility and complexity of work therefore the answers to question #4 and #5 are of particular interest. You are encouraged to use this report as a guide for both yourself and your supervisor in order to indicate the kind of progress you are making as a member-in-training.

I, _____
Surname Given Name Middle Name(s)
(FULL LEGAL NAME)

Currently Employed ☐ Enrolled in a program of study ☒ Or Unemployed: ☐

By _____
Company Name Address Postal Code Phone Number

_____
Company Email Home Address (See Note 1) Home Postal Code Home Phone Number

hereby submit the following report on my Pre-Registration Program participation from

02/05/05 (d/m/y) to 25/11/05 (d/m/y)

During this period, I was employed by:

_____
Company Name Address Postal Code Phone Number

_____
Company Email

as _____ under the immediate supervision
Description of position held

of _____
Supervisor's Name (see Note 2) Present Address Postal Code

_____
Supervisor's Phone No. Supervisor's Email

If your supervisor was not a P.Eng. or P.Geo. registered in Manitoba please provide the name of the professional member who is taking responsibility for your work during this period (mentor):

_____
Mentor's Name (See Note 2) Present Address Postal Code

_____
Mentor's Phone No. Mentor's Email

Note 1: Provision of home information is voluntary. See see Privacy Policy at www.apegm.mb.ca for further details. Note 2: Under PIPEDA, you may not give any information other than the name, title, business address and business phone number of an individual without the consent of that individual. Please see Privacy Policy at www.apegm.mb.ca for further details.

2. Work Experience:

2.1 Please give a description of your Engineering/Geoscientific Work Experience for the period noted in question #1, **including** information in support of your responses to questions **2.2**, **2.3, 2.4** and **2.6**. Append additional sheets as necessary:

2.1.1. Application of Theory

Analysis

I conducted a literature search and review of different climate models; with particular emphasis focused on the CGCM models developed by the Canadian Center for Climate Modeling and Analysis. These climate models are commonly referred to as General Circulation Models (GCMs) and are designed to simulate the climate taking into account the various interactions between the system components of the climate.

Through my research I learned that despite the enormous amount of information provided by these GCMs, they have limitations, since climate is a very complex system. The amount of computer resources required to process these complex models is considerable and only organizations that have access to large processing power are able to develop and operate these models. The grid resolution is currently a serious limitation currently, because the typical horizontal grid resolution is between 2 to 5 degrees latitude and longitude and therefore they are unable to represent accurate sub-grid information. This results in spatial resolution of the GCMs being too coarse to resolve important sub-grid scale process and an inability to accurately depict the changes of the hydrological regimes as a result of climate change. Since climate impact studies hydrologic models usually require sub-grid scale data as an input, to match the sub-grid scale data outputs, the data produced by the GCMs is presently inadequate.

In order to overcome these limitations of GCM, further research was conducted on the development of "Downscaling" techniques. The term downscaling means relating large atmospheric predictor variables like atmospheric pressure, to local or station scale meteorological variables such as precipitation which is an input into hydrological models.

There are various different downscaling methods such as:

1) Dynamic downscaling:
2) Empirical (statistical) downscaling:
    a. Regression downscaling:
    b. Stochastic weather generators:
    c. Weather Typing Schemes:

I examined each method briefly and decided to focus my studies on two statistical downscaling models, SDSM based on the Statistical Downscaling model developed by Wilby and LARS-WG based on the Stochastic Weather Generator developed by Semenov.

The main objective of utilizing these models is to test their feasibility and adequacy in the simulation of daily time series of precipitation and temperature extremes, for different locations throughout the Canadian Prairie Region. I then commenced an investigation of the precipitation data from Environment Canada, at various stations across the Prairies. Upon obtaining the data, it was imported into a computer program called Matlab which was used to examine the data in more detail.

Plots were developed to examine the monthly mean precipitation for the various stations and the results at the various stations determined that there were some anomalies with some stations which had gaps in the data or relocation of stations. These were flagged for further analysis at a later time.

Design & Synthesis

A design for the approach undertaken to test the two statistical models was developed utilizing a flow chart. The flow chart was essential to ensure that no steps were omitted in the modeling process. The design was then tested using sample data for a site in Europe and the results were verified with those of the original designer of the models, to ensure that they were run appropriately.

2.1.2. Practical Engineering Experience

Visits to Existing Engineering Works:

I was invited onboard the Lake Winnipeg research vessel, Namao where I was able to familiarize myself with important scientific procedures utilized to perform environmental tests on the lake and become familiar with the current research undertaken on the lake. The knowledge and experience I gained can be applied to further scientific studies undertaken in the area of environmental engineering.

2.1.3. Engineering Management

Scheduling

Through my research in Climate Change I was able to plan and schedule my research work to ensure that I met my personal goals and deadlines. In order to accomplish this, I set weekly and monthly goals. At each milestone, I was able to evaluate my work to ensure that I was on schedule and within the plan developed.

2.1.4. Communication Skills:

Written

To gain experience in writing a journal article and learn the process in researching and testing a theory I wrote a practice manuscript to a Journal on the distribution of Trees Species in Central Panama Canal from a data set obtained from researchers of the Smithsonian Tropical Research Institute. This report examined the application of the equilibrium theory of Island Biogeography (Theory) which generally states that species diversity is lower on an island than a mainland. This was done by examining the species diversity of trees in Central Panama using three measures of diversity: species richness, heterogeneity and evenness. An analysis of the data for this study supported the Theory fairly well, showing that the island had a lower diversity of trees than the mainland. Management implications of the study results were also examined and recommendations made on the nature and size of new land parcels which should be considered for acquisition.

I also performed a Peer-Review on a colleagues' manuscript who performed a similar analysis on the same data set. In the review process the colleagues name and the reviewers name remained anonymous to ensure that the review was unbiased and fair. The review commented on both the positive and negative aspects of the manuscript. The purpose of this review was to familiarze myself with the process undertaken in a Peer-Review and the importance of reviewing other colleagues work.

I researched and wrote an Ecosystem Management Plan for the Lake Winnipeg Ecosystem with a focus on the implications of Climate Change on the ecosystem. This topic was chosen since Lake Winnipeg plays an important role in the lives of many Manitobans and is an important symbol for the province.

There are many issues that are being raised about the impacts humans are having on the quality and quantity of the water and the general health of the lake. It became clear, during this study that while people within the ecosystem have had localized impacts on the lake, Climate Change and rising global temperatures, caused by people all over the world, will likely create significant impacts on the lake which can not be ignored.

Various general circulation models were examined which predicted that Lake Winnipeg will likely incur the most significant impacts, due to its location in central Canada, and the shallow depth of the lake. Therefore development of this plan and its recommendations was important, since climate change could ultimately have a significant adverse effect on the Lake Winnipeg Ecosystem, if ignored.

The goal of the Lake Winnipeg Ecosystem Management Plan was to foster a clean, healthy and safe Lake Winnipeg Ecosystem with a focus on those issues a changing climate will have on the ecosystem and to examine the current issues on the lake which may be exacerbated by Climate Change.

Oral

I presented a review of a Journal paper entitled "Are Boreal Birds Resilient to Forest Fragmentation: A Short-Term Study on Community Responses" written by researchers from The Calling Lake Fragmentation Experiment at the University of Alberta. This paper was a landscape-level study, which examined the effects of forest harvesting on biodiversity in boreal mixed wood forests. Through my presentation, I was able to apply many key principles taught in class as well as research other elements which were not explained in detail in the paper to ensure that my audience fully understood the topic.

I presented my Lake Winnipeg Ecosystem Management Plan: A Focus on Climate Change, for my colleagues. The focus of my presentation was to familiarize my audience with the importance of managing Lake Winnipeg for Climate Change and the importance of research in the area of Climate Change.

2.1.5. Other:

I was a teaching assistant for Engineering Statics, which is a first year mechanics course. In this course Statics of particles were examined along with equilibrium of rigid bodies, and analysis of structures with different forms and load distributions. Statics is a fundamental course which sets the foundation for understanding how to analyze and design structures. As a teaching assistant I was responsible for marking assignments and answering any questions the students had during tutorial sessions and outside of class time. In this position I was able to understand the importance of clearly communicating ideas and theories effectively and clearly to the students.

Note: Supervisor and Mentor assessments are to be shown by indicating either **Yes** or **No** in the space following the question:

Do you agree with the answer provided by the MIT?

If you are a professional member supervisor or a mentor, complete the Professional Member field. If you are a non-member supervisor, complete the non-member field. Comments should be made as applicable especially if the answer is No.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____
_____
_____

2.2 While undertaking the work experience indicated in 2.1, I have applied theory in:

i) Analysis/Interpretation_X_ ii) Project Design & Synthesis__X__ iii) Testing/Verification____
iv) Implementation ___ v) Other(s)_____
(please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____
_____

2.3 While undertaking the work experience indicated in 2.1, I obtained practical experience by:

i) Studying or being exposed to existing engineering/geoscience works___X_____
ii) **For EITs:** Applying designs as parts of larger systems_____
iii) **For GITs:** Integrating geoscience data analysis with larger projects/systems_____
iv) Experiencing the limitations of engineering designs/geoscience projects_____
v) Experiencing time as a factor in the engineering/geoscience process____X_____
vi) Other(s)_____
(please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____
_____
_____

2.4 While undertaking the work experience indicated in 2.1, I was exposed to the following areas of engineering/geoscientific management:

i) Planning___X_ ii) Scheduling _X__ iii) Budgeting _____ iv) Supervision _____
v) Project Management _____ vi) Risk Assessment _____
Other(s)_____
(please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____
_____

2.5 During this period, my communications skills improved, as follows:
(i) Oral presentations

I presented my report on "A Lake Winnipeg Ecosystem Management Plan: A Focus On Climate Change" and a paper on "Are Boreal Birds Resilient to Forest Fragmentation: A Short-Term Study on Community Responses". As well I had the opportunity to summarize and present our group discussions to my fellow colleagues. I believe that these opportunities improved my oral and written communication skills and I gained more confidence in my public speaking abilities.

(ii) Written documents

I researched and wrote a sample manuscript to a scientific journal to gain experience in writing a journal article. This helped me understand the complete process of researching and testing a theory. I also undertook a peer-review of a colleague's manuscript to familairze myself with the peer-review process and the importance of reviewing other colleagues work.

I researched and wrote an Ecosystem Management Plan focusing on the impacts of Climate Change on Lake Winnipeg with the goal to foster a clean, healthy and safe Lake Winnipeg Ecosystem. The main purpose of this paper was to focus on all the issues climate change will have on the ecosystem, in particular, water resources in Manitoba and also examine the current issues on the Lake Winnipeg which may be exacerbated by Climate Change. This was an important paper prepared to emphasize the implications of a changing climate on the lake and the importance of continuing research in this area.

(iii) Interaction with others

I met with other masters' students working on Climate Change projects to discuss the scope of their research and understand their approach to studying such a complex subject. I also worked in groups to analyze various papers written on a wide range of environmental issues. I believe these experiences allowed me to strengthen my listening and collaborative skills which will enable me to work better in a team environment.

I was also able email another researcher doing similar research regarding the impacts of climate change on the hydrological cycles. This allowed me to gain valuable knowledge and additional information about my area of studies as well as learn the importance of effective communication.

(iv) Other(s)

I was a teaching assistant for Engineering Statics, which is a first year mechanics course. This course examined the statics of particles, equilibrium of rigid bodies, and analysis of structures with different forms and load distributions. Statics is a fundamental course which sets the basis for understanding how to analyze and design structures. As a teaching assistant I was responsible for marking assignments and answering any questions the students had during tutorial sessions and outside of class time. Through this position I was able to gain insight in the importance of effective communications and to assist the students in understanding the ideas and theories in an efficient and effective manner.

Supervisor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

_____

2.6 During this period, I was required to make decisions based on an engineer's/geoscientist's professional and ethical responsibilities as follows, to:

i) The public_____ ii) The profession_X____ iii) The client and/or employer _____
iv) Co-workers_X____ v) The environment_____

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

2.7 During this period, I had to consider the social implications of my work in the following areas:

I was able to convey the nature and benefits of my research I was conducting to others.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

_____

3. Personal Development

3.1 Examples of my ability to work effectively as part of a team, during this period, include:

I worked as a team member to review and evaluate various journal papers submitted. The team was responsible for reviewing the paper, summarizing its contents, examining some of the methods of the papers in more detail, and critiqued the paper's pros and cons. Following each session a brief summary of our results were presented to our colleagues our findings were distributed. These experiences allowed me to strengthen my team building and consensus building skills.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

_____

3.2 Examples of my ability to assume responsibility during this period include:

I was a teaching assistant for the course Engineering Statics. I was responsible for marking assignments, keeping a record of all the students' marks and answering questions the students had during tutorial sessions and outside class time.

Supervisor/Mentor Assessment: **Do you agree with the answer provided by the MIT?**

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

_____

4. I have shown progress since the last report (where applicable) as follows:

This is my first progress report.

Supervisor/Mentor Assessment: **Do you agree with the answer provided by the MIT?**

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

_____

_____

5. I consider myself to be lacking in exposure to, or requiring improvement in, the following areas:

I would like to improve in the planning aspects of engineering management as well as evaluation and testing.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____
_____
_____

During this period, I undertook the (additional) continuing education and professional development activities that are shown on the attached form.

7. During this period, I undertook the (additional) volunteer activities shown on the attached form.
8. I would like to provide the following additional, relevant information:

_____
_____
_____
_____

9. I understand that this progress report will be reviewed by my immediate supervisor and, where applicable, by the mentor who took responsibility for my work.
Note: Your report <u>will not</u> be considered unless it is signed and dated.

_____ _____
Date Signature

To be completed by Supervisor/Mentor:

10. Supervisor/Mentor Comments:

I would like to provide the following additional relevant information about the MIT's progress and/or character (**Note: you must complete this portion)**

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Supervisor/Mentor Signature:

Date

Signature

Note: This report will not be considered unless it is signed and dated.

Note: Each supervisor or mentor should complete a separate page.

For Professional member only:

Please affix and sign seal:

mitform2004-r4.doc Updated December 16, 2004