GUIDELINE
for the ENGINEER-IN-TRAINING Program

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SECTION 1 - INTRODUCTION

The Association of Professional Engineers of the Province of Prince Edward Island is charged with the responsibility for regulating the Practice of Engineering within the province of Prince Edward Island. In 2008, the Association adopted the business name of **Engineers PEI**. The duties of the Association, with respect to safeguarding the public interest, are clearly defined by the *Engineering Profession Act*. Similarly, the responsibilities of the individual engineer to the public, the employer, the client and fellow engineers are embodied in the framework of the code of professional conduct entitled *The Code of Ethics*, contained within the *By-laws* of the *Act*. Together, these documents serve to define the Practice of Engineering within Prince Edward Island. All Engineers-in-Training (EITs) are strongly advised to obtain a copy of these documents for review.

Education is an on-going activity for those who choose engineering as a career. It starts early in life, sparked by an interest in the world around us, and continues through periods of academic study and apprenticeship, before becoming an integral part of a professional career. This continuum of education is marked by formal programs along the way including the undergraduate engineering degree and Engineers PEI's Engineer-In-Training and Professional Development programs. As one part of the formal process, this program guide has been prepared by Engineers PEI to outline the requirements of its Engineer-In-Training program. The purpose of the EIT program is to provide EITs with guidance to assist them in their transition from engineering graduates to fully qualified professional engineers and members of Engineers PEI.

The EIT program benefits multiple stakeholders. The EIT receives guidance to ensure that quality experience is obtained, ethics and professionalism are developed and licensure is achieved as seamlessly as possible. The EIT's employer benefits from the enhanced qualifications, experience and skills gained by the EIT. The Association is able to bring engineering graduates into the profession while monitoring their experience and providing them with meaningful feedback. The profession gains better-prepared and professionally motivated members. Society benefits from the EIT's understanding of the paramount impact that engineering practice has on the public interest.

This guideline sets the standards that EITs are expected to meet to qualify for full professional registration with Engineers PEI. It is intended as an aid only. Conformance with this guideline does not constitute a guarantee of registration. In all cases, the applicant bears the onus for meeting all requirements for registration as stipulated by Engineers PEI's Council (Council) to the satisfaction of the Engineering Qualifications Committee (EQC). The EQC will make final recommendations with respect to applications for registration, subject to the approval of Council.

1.1 EIT PROGRAM OBJECTIVES

The objectives of this EIT Program are to ensure that EITs enrolled with Engineers PEI:

- ► acquire the appropriate level of engineering work experience;
- ► meet the levels of responsibility and accountability required for professional practice;
- ► understand their roles in protecting the public interest;
- ► gain values of ethics and professionalism and of social and environmental awareness;
- ► appreciate the value of working within the limits of personal training and experience; and
- ► understand the role of the profession in society and their responsibility to support it.

As Engineers PEI's EIT Program is generally consistent with those of the other constituent associations/ordre, meeting its requirements should improve the mobility of EITs across the country.

1.2 STEPS TO PROFESSIONAL REGISTRATION

Prior to submitting an application to Engineers PEI for registration as a professional engineer, all EITs must satisfy various requirements associated with the following steps:

- Completion of academic qualifications;
- Enrollment as an EIT (the first step after obtaining academic qualifications);
- Acquisition of engineering work experience;
- Completion of the online Competency Based Assessment program;
- Completion of National Professional Practice Examination; and
- Compliance with continuing professional development requirements.

1.3 INFORMATION SESSIONS

Information sessions will be offered twice a year to enable new EITs to obtain a thorough understanding of the requirements of the EIT Program and of the responsibilities which will be incurred upon becoming a Professional Engineer. These sessions will be organized and presented by the EIT Committee. Attendance by the EIT at one of these sessions is mandatory within the first year of enrolment as an EIT. Engineers PEI will advise all newly registered EITs of the dates and times of these information sessions.

SECTION 2 – REGISTRATION REQUIREMENTS

The following section describes the requirements for registration as a Professional Engineer with Engineers PEI. To be registered, all applicants must demonstrate qualifications in the following areas:

- academic background;
- engineering work experience;
- professional practice and ethics;
- language of jurisdiction of practice;
- local practices and conditions; and
- personal character.

Note that full professional registration with Engineers PEI is subject to the acceptance of the candidate's qualifications by the EQC and approval by Council. Again, the applicant bears the onus for demonstrating that all requirements for registration have been met.

2.1 ACADEMIC QUALIFICATIONS REQUIREMENT

The primary manner in which academic qualifications are met is through a degree from a Canadian Engineering Accreditation Board (CEAB) accredited program or a CEAB-recognized program. All graduates of such programs are considered to be academically qualified for licensure. Alternatively, individuals who do not hold such a degree may demonstrate academic qualifications through the successful completion of examinations and/or other requirements assigned by the EQC.

For academically qualified individuals, the first step in the path toward registration as a professional engineer is to enroll in an EIT Program. It is during this time that development of qualifications in each of the noted areas other than academic background is expected to be accomplished. Note that at the time of enrollment, EIT Program applicants may be required to provide the Association with a certificate of graduation and transcripts. The EQC reserves the right to recommend that other individuals enroll in the EIT Program to ensure that their qualifications meet the standards set by this guideline. For instance, foreign trained engineers with considerable years of experience may be asked to enroll for a sufficient period of time to become familiar with local conditions and practices.

2.2 ENGINEERING WORK EXPERIENCE REQUIREMENT

Engineering work experience is an essential element in determining whether or not an individual will be accepted for professional registration. Experience must be current and consistent with the EIT's field of academic qualification to be acceptable. Also, experience is normally obtained following academic qualification while enrolled in an EIT Program, with the exception of any allowable pre-graduation and post-graduate degree experience. No experience will be automatically credited.

In order for experience to be regarded as acceptable engineering work experience, an EIT must work under the supervision of and receive engineering training from a professional engineer. This supervising professional engineer, then, must provide signature verification on work experience being reported. It is recognized, however, that an EIT's direct supervisor may not be a professional engineer. In this case, signature verifications for work experience being reported must be provided by both the direct supervisor and the supervising professional engineer.

Eligibility for professional registration with Engineers PEI requires that an EIT obtain a minimum of four years of acceptable engineering work experience. When submitting your application for professional registration, you must first complete the online Competency Based Assessment program. You must also have at least 48 months of engineering work experience. Note that it is the quality of the experience obtained that is important, not just the quantity of experience obtained. In all cases, however, the four year minimum time period must be met. The EQC may require that further engineering work experience be obtained if it deems the experience gained during the minimum four year period to be of insufficient quality.

Ideally, acceptable engineering work experience should include exposure to, and hands-on experience in, the following broad areas:

- ► practical engineering experience;
- ► application of theory;
- ► management of engineering;
- ► communication skills; and
- ► the social implications of engineering.

Assessment of the acceptability of the work experience is based on the extent to which the EIT's experience includes these areas.

2.3 PROFESSIONAL PRACTICE EXAMINATION REQUIREMENT

Engineers PEI requires that applicants for professional registration write and pass the National Professional Practice Exam (NPPE). The exam, conducted in the English language, is held five times per year. The exam is completed online using a virtual proctor. Candidates may make

application to write the NPPE after a minimum of one year of engineering work experience, following completion of an academic degree.

Professional engineers must understand:

- their role in protecting the public interest;
- values of ethics and professionalism and of social and environmental awareness;
- the importance of working within the limits of personal training and experience; and
- the role of the profession in society and their responsibility to support it.

The NPPE is designed to examine applicants on the ethical considerations and obligations that accompany the privileges of professional status and the legal concepts relevant to professional engineers. Part of the examination tests the applicant's understanding of professionalism, while the remaining part tests the applicant's knowledge of engineering law and familiarity with jurisdiction-specific statutes, rules and regulations and the *Engineering Profession Act and By-Laws*. The NPPE is, in general, based on the syllabus of Engineers Canada. The Engineers Canada syllabus has two sections:

- Professional Practice and Ethics, and
- Engineering Law and Professional Liability.

Details of the NPPE, such as examination schedules, recommended reference books, examination regulations, supervision and fees, will be supplied to the EIT by Engineers PEI when the applicant's request to write the examination has been received and approved by the Association.

2.4 CONTINUING PROFESSIONAL DEVELOPMENT REQUIREMENT

All members of Engineers PEI, including EITs, are required to comply with the requirements of the Association's *Continuing Professional Development Program for Professional Members and Engineers-in-Training*. For the requirements of professional development activities, EITs should refer to the document *Guidelines for Compliance*. The responsibility for continuing professional development rests with the member or EIT.

2.5 ADDITIONAL REQUIREMENTS

- The applicant must demonstrate satisfactory communication skills in the English language.

- The applicant must provide three references to vouch for his or her professional engineering experience, good character and reputation. One of the references must be from a registered professional engineer in the Province of Prince Edward Island.

- Subject to the *Engineering Profession Act*, applicants must be residents of Prince Edward Island.

- At least one full year of the minimum engineering work experience requirement **must be** gained in Canada.

SECTION 3 - ENGINEERING WORK EXPERIENCE REQUIREMENT

In general, acceptable engineering work experience is defined as experience that:

- ► comprises the practice of professional engineering;
- ► is normally consistent with the field of academic qualification and is current;
  includes exposure to, and hands-on experience in the areas of practical engineering experience, application of theory, management of engineering, communication skills, and the social implications of engineering;
- ► demonstrates progression and growth;
- ► is normally obtained while enrolled in an EIT Program with the exception of any acceptable pre-graduation and post-graduate degree experience;
- ► is obtained under the guidance and supervision of a professional engineer; and
- ► is normally recorded and reported to the Association.

This section provides supplementary information to Section 2.2 in the form of more detailed qualitative descriptions to assist in identifying activities which may qualify under the five broad areas of engineering work experience identified. These descriptions are not intended as a point rating system. In determining whether the candidate has gained acceptable overall engineering work experience, the EQC examines the experience obtained with respect to the following criteria:

- ► a well-rounded work program with some experience in each of the five identified categories;
- ► an understanding of individual limitations with respect to the practice of engineering; and
- ► progression into work of greater complexity and increased responsibility.

3.1 PRACTICAL ENGINEERING EXPERIENCE

Practical experience allows applicants to understand the practical limitations of real systems. Practical experience should include:

- ► site visits to existing engineering works, with opportunities to see equipment and systems in both operational and maintenance circumstances;
- ► application of equipment as part of the larger system, including, for example, the merits of reliability, the role of computer software, and understanding the end product or engineering work in relationship to the equipment;
- ► opportunities to experience and understand the limitations of practical engineering and related human systems in achieving desired goals, including for example, limitations of production methods, manufacturing tolerances, performance minima and maintenance philosophies; and
- ► opportunities to experience the significance of time in the engineering process, including for example, workflow, scheduling, equipment wear-out and replacement scheduling.

3.2 APPLICATION OF THEORY

The skilful application of theory is the hallmark of quality engineering work, and an applicant's experience shall include meaningful participation in one or more of the following:

- ► analysis: includes scope and operating conditions, feasibility assessment, safety and environmental issues, technology assessment, and economic assessment;

- ► design and synthesis: includes functionality or product specification, component selection, integration of components and subsystems into larger systems, reliability and maintenance factors, human and environmental aspects, and the societal implications of the product or process;
- ► testing methods: includes devising testing methodology and techniques, functional specification verification, and new product or technology commissioning and assessment; and
- ► implementation methods: includes technology application, engineering cost studies, optimization techniques, process flow and time studies, quality assurance implementation, cost/benefit analysis, safety and environmental issues and recommendations, and maintenance and replacement evaluation.

3.3 MANAGEMENT OF ENGINEERING

Management of engineering works includes the supervision of staff, project management, general exposure to an engineering business environment, and the management of technology. Engineering management includes:

- ► planning, from conception through to implementation including needs assessment, concept development, assessment of resources required, and assessment of impacts, including societal and project implementation;
- ► scheduling, from establishing interactions and constraints, developing activity or task schedules, and allocation of resources, through to the assessment of delay impacts and beyond to broader aspects, such as interactions with other projects and the marketplace;
- ► budgeting, including the development of preliminary and detailed budgets, identifying labour, materials and overhead, risk analysis, life-cycle analysis, and tracking;
- ► supervision, including leadership, professional conduct, organization of human resources, team building, and management of technology;
- ► project control, including co-ordination of work phases, tracking and monitoring costs and progress, and implementing changes to reflect actual progress and needs; and
- ► risk-analysis related to operating equipment and system performance, product performance evaluation, and evaluation of societal and environmental impacts.

3.4 COMMUNICATION SKILLS

Developing and practising communication skills are an essential experience requirement. This applies to all areas of the work environment including communication with superiors, colleagues, regulators, clients, and the public. Applicants should have regular and progressive opportunities to participate in:

- ► preparation of written work, including day-to-day correspondence, record-keeping, and report writing;
- ► making oral reports or presentations to colleagues, supervisors, senior management, and an exposure to, or participation in, reports to clients and regulators; and
- ► making presentations.

3.5 SOCIAL IMPLICATIONS OF ENGINEERING

The overriding objective of the social implications of engineering requirement is to provide experiences which increase awareness of an engineer's professional responsibility to guard against conditions dangerous or threatening to life, limb, property, or the environment, and to call any such conditions to the attention of those responsible. The social implications of

engineering are an important aspect of the practice of engineering. The work environment should provide opportunities for applicants to heighten their awareness of the potential consequences of engineering work. This should include:

- a recognition of the value and benefits of the engineering work to the public;
- an understanding of the safeguards required to protect the public and methods of mitigating adverse impacts;
- an understanding of the relationship between the engineering activity and the public;
- a demonstrated interest and involvement in the broader social implications of engineering;
- an appreciation of the role of regulatory bodies on the practice of engineering; and
- an understanding of the provincial health and safety of the workplace legislation.

3.6 PRE-GRADUATION EXPERIENCE

Pre-graduation work experience gained following the completion of at least two years of a CEAB-accredited or CEAB-recognized engineering program may qualify for up to one year of the minimum four-year experience requirement. Pre-graduation experience should be supervised by a professional engineer; however, the EQC will evaluate all pre-graduation experience for eligibility. Submission of all such experience must be documented in a manner consistent with documentation for experience gained from employment while enrolled as an EIT. For those individuals whose academic qualifications are established by other means, the EQC will, at its discretion, assess potential pre-graduation experience for eligibility.

3.7 POST-GRADUATE DEGREE EXPERIENCE

Experience gained through the completion of a post-graduate degree (Masters, PhD), in an area consistent with the field of academic qualification, may qualify for up to one year of the minimum four year experience requirement. The EQC will evaluate all post-graduate degree experience for eligibility. Submission of all such experience must be documented in a manner consistent with documentation for experience gained from employment while enrolled as an EIT.

SECTION 4 - ROLES AND RESPONSIBILITIES

4.1 ROLES AND RESPONSIBILITIES OF THE EMPLOYER AND SUPERVISORS

Those supervising an EIT's work must assess the quality of the EIT's work on a regular basis and verify the EIT's documentation of work experience. Supervisors are responsible for assigning work, and for providing advice and support to EITs. Supervisors should ensure that the engineering work carried out by the EIT is progressive in complexity and responsibility. The employer and supervisors should offer the EIT a full range of responsibilities and opportunities in the practice of engineering to the extent that the EIT gains experience in all five of the engineering work experience requirement areas. Supervisors may be called upon by the Association to provide information regarding the experience and the progress of EITs.

Employers and supervisors also play a role in the continuing education and professional development of EITs. They should provide the EIT with the opportunity for professional development and reasonable progression towards increasing involvement and responsibility over time so as to assist the EIT in meeting the requirements of the Association's Continuing Professional Development Program.

4.2 ROLES AND RESPONSIBILITIES OF THE EIT COMMITTEE

Engineers PEI's EIT Committee is responsible for the overall operation of the EIT Program. It employs an Experience Review Board (Board) as the liaison between the EIT and the Association. The Experience Review Board shall consist of at least three members of the Association including a Past President who shall act as Chair. The Board monitors the EIT's progress during this extremely valuable training period and assesses the experience gained in terms of suitability, relevance, complexity and progression. The Board then provides feedback to the EIT at regular intervals to enhance the value obtained by the EIT's enrollment in the EIT Program. The role of the Board is complementary to that of the employer and supervisors. If the Board has any doubts as to the acceptability of experience being gained by the EIT, the EQC is to be consulted through Engineers PEI. The role of the Board is to assess the EIT's engineering development. The Board does not take responsibility, either technical or professional, for the work of the EIT.

The following conditions apply to the EIT Committee and its Experience Review Board:

- ► All communications and discussions with the EIT are confidential, however, copies of assessments provided by the Board to the EIT will be filed by the Association.
- ► EIT CBA submissions are reviewed only to assess the appropriateness and presentation of the engineering experience, for the benefit of the EIT. The Board must not participate in the EIT's work in any way, or offer advice on any aspects of the work itself.

4.3 ROLES AND RESPONSIBILITIES OF THE ASSOCIATION

Because the EIT Program requires the co-operation and support of the employer and supervisors, and involves continuing education and professional development, the Association will endeavor to make all employers and supervisors aware of the requirements of this, and other relevant programs.

The Association has an obligation to support and encourage Engineers-in-Training in the process of professional registration, and to provide timely feedback before the end of the EIT period.

4.4 ROLES AND RESPONSIBILITIES OF THE EIT

The EIT is responsible for complying with the EIT Program, gaining appropriate experience, advice, and exposure to engineering ethics and professionalism, as well as carrying out professional development and participation-related activities.

It is the responsibility of the EIT to complete the online Competency Based Assessment program and present all engineering work experience and professional development activities to illustrate relevance to the areas of acceptable experience described in Section 3.

4.4.1 COMPETENCY BASED ASSESSMENT PROGRAM

Work experience is submitted, validated and assessed online through the Competency Experience Reporting System.

Competencies are observable and measurable skills, knowledge, abilities, motivations or traits required for professional registration.

All engineering work experience and professional development activities should be presented in a manner which illustrates relevance to the areas of acceptable engineering work experience described in Section 3.

The onus is on the EIT to provide evidence that they possess, through experience, the capability to practice engineering at a professional level.

SECTION 5 - REGISTRATION, DOCUMENTATION AND REVIEW

5.1 APPLICATION FOR PROFESSIONAL REGISTRATION

When all registration requirements described in Section 2 have been satisfied, an application for registration as a full Engineers PEI member should be completed and forwarded to the Association with the applicable fees and dues.

5.2 COMPLETION OF ONLINE CBA

The EIT submits the original logbook with an application for registration as a full Engineers PEI member once all requirements have been satisfied. The information must be submitted in a format acceptable to the EQC, enabling the EQC to evaluate engineering work experience fairly and consistently for all EITs applying for professional registration.

5.3 REVIEW BY THE ENGINEERING QUALIFICATIONS COMMITTEE

The EQC is responsible for assessing all documentation submitted by each candidate for professional registration with Engineers PEI and for ensuring that all requirements for registration are met. The EQC plays an integral role in the certification of academic background, engineering experience and other qualifications as part of its overall mandate to recommend EIT applicants for full registration as professional engineers with the Association. The recommendations of the EQC are submitted to Council, which decides on each application for registration. Through this process, precautions are taken to ensure that each applicant meets the registration requirements, in the interest of protection of the public.

Upon receipt of an application for professional registration, including all necessary supporting documents, the EQC initiates the following review process:

- a detailed review of the completed Competency Based Assessment program;
- an extensive interview with the applicant;
- confirmation of compliance with remaining registration requirements; and
- a recommendation to Council subject to a reference check.

The EQC also acts as a resource to the Experience Review Board should interpretation of this guideline or of acceptable experience be needed. However, the EQC should not assist the Board in its role as described in this guideline.