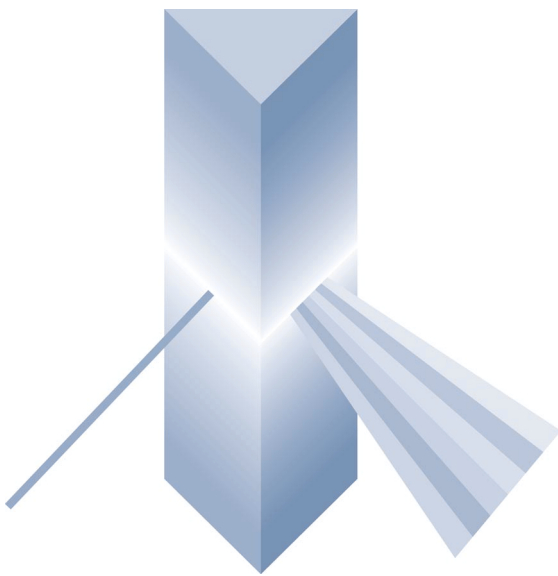




Pregraduation Experience Record Guide



*How to record your
pregraduation experience
for consideration as credit
toward the experience
requirement for licensing*

Introduction

Graduates of an undergraduate engineering program accredited by the Canadian Engineering Accreditation Board are eligible to receive credit of up to 12 months for engineering experience acquired before graduation toward the required 48 months of work experience for licensing. To be eligible for consideration, the pregraduation experience must:

- ◆ be acceptable and verifiable engineering experience;
- ◆ have been gained following the half-way point in your studies (i.e. following completion of 50 per cent of the academic program); and
- ◆ be related to your area of study and area of practice on graduation.

It's mandatory that you be exposed to the application of theory during the work period. Acceptable engineering experience exposes you, to a greater or lesser extent, to five quality-based criteria:

- ◆ Application of Theory;
- ◆ Practical Experience;
- ◆ Management of Engineering;
- ◆ Communications Skills; and
- ◆ Social Implications of Engineering.

Although all five criteria need not be fulfilled in each pregraduation position, you must demonstrate *substantial exposure to Application of Theory* and at least a *reasonable exposure to the remaining elements*.

Recording your pregraduation experience

The Pregraduation Experience Record Form included as part of this guide gives you a format for recording your pregraduation experience. However, you may also choose to prepare your pregraduation experience record using your own format, as long as you provide the following information:

- ◆ your name, university attended, expected graduation date, program of study and PEO Student Membership Program (SMP) number (if applicable);
- ◆ start and end dates of the reported work periods (day/month/year);
- ◆ your job title and the company name;
- ◆ a brief description of your job responsibilities, emphasizing the engineering duties you performed;

- ◆ an explanation of how you applied engineering theory in this position, including estimating the percentage of time spent applying theory;
- ◆ a brief description of how the work experience met the other criteria (practical experience, management of engineering, communication skills and social implications of engineering); and
- ◆ the name, title, address, signature of your supervisor (use P.Eng. title and licence/registration number where applicable) and the date he or she signed the form.

You must complete one pregraduation experience form for each position and have your supervisor sign the completed form.

You may download the Pregraduation Experience Record Form from PEO's website (www.peo.on.ca) as a Word form and complete it electronically, or you may download it in PDF format and complete it by hand.

Acceptable engineering experience

Forty-eight months of acceptable engineering experience is required for licensing. Although it is preferable that your pregraduation experience be supervised by a professional engineer, it is not mandatory. Your pregraduation experience should provide you an opportunity to be licensed in less than the four years usually required after graduation by exposing you to the five quality-based criteria used to assess experience: application of theory, practical experience, management of engineering, communication skills, and social implications of engineering.

Application of Theory

Because skilful application of theory is the hallmark of quality engineering work, your experience must include meaningful participation in at least one aspect of these applications of theory:

- ◆ analysis, including scope and operating conditions, performance assessment, safety and environmental issues, technology assessment, economic assessment, reliability analysis;
- ◆ design and synthesis, including functionality or product specification, component selection, integration of components and subsystems into larger systems, reliability and maintenance factors, environmental and societal implications of the product or process, quality improvements;
- ◆ testing methods, including devising testing methodology and techniques, verifying functional specifications, new product or technology commissioning and assessment; and
- ◆ implementation methods, including applying technology, engineering cost studies, optimization techniques, process flow and time studies, implementing quality control and assurance, cost/benefit analysis, safety and environmental issues and recommendations, maintenance and replacement evaluation.

Practical Experience

Practical experience provides applicants with an appreciation of the fundamental roles of function, time, cost, reliability, reparability, safety and environmental impact in their work. Practical experience should provide opportunities to experience, understand and acquire knowledge of such elements as:

- ◆ the function of components as part of a larger system, including, for example, the merits of reliability, the role of computer software, or the relationship of the end product to the equipment and to the equipment control systems;
- ◆ the limitations of practical engineering and related human systems in achieving desired goals, including, for example, limitations of production methods, manufacturing tolerances, operating and maintenance philosophies, ergonomics;
- ◆ the significance of time in the engineering process, including the difficulties of work flow, scheduling, equipment wear out, corrosion rates and

replacement scheduling; and

- ◆ the importance of the codes, standards, regulations and laws that govern applicable engineering activities.

Management of Engineering

Management of engineering projects includes supervising staff, managing projects, being exposed generally to an engineering business environment, and managing technology from a societal perspective. Acceptable engineering management experience for licensing involves:

- ◆ planning, from identifying requirements, developing concepts, evaluating alternative methods and assessing required resources to planning for the social ramifications;
- ◆ scheduling, from establishing interactions and constraints, developing activity or task schedules, allocating resources and assessing the impact of delays to determining and assessing projects' interactions with other projects and the marketplace;
- ◆ budgeting, from developing conceptual and detailed budgets identifying labour, materials and overhead to assessing risk of cost escalation and reviewing budgets in light of change;
- ◆ supervision, including leadership and professional conduct, organizing human resources, motivating teams and managing technology;
- ◆ project control, requiring understanding of the elements of a whole, in order to coordinate phases of project work, monitor expenditures and schedules and take corrective action; and
- ◆ risk assessment, relating to operating equipment and system performance, technological risk, product performance, and social and environmental impacts.

Communication Skills

An opportunity to develop communication skills is an important experience requirement. This applies to all areas of the work environment, including communication with supervisors, co-workers, government regulators, clients and the general public. Acceptable communications experience should give you an opportunity to participate in:

- ◆ preparing written work, including day-to-day correspondence, design briefs and major reports;
- ◆ making oral reports or presentations to co-workers, supervisors, senior management, clients and regulatory authorities; and
- ◆ making presentations to the general public as such opportunities arise.

Social Implications of Engineering

As reflected throughout the other quality-based experience criteria, understanding and accounting for the social implications of engineering is an important aspect of engineering practice. A professional engineering work environment is one that heightens an applicant's awareness of the social consequences, either positive or negative, of an engineering activity. Although not every project or activity will have direct or immediate social consequences, an applicant's work experience should, nevertheless, instil an awareness of the:

- ◆ value or benefits of engineering works to the public;
- ◆ safeguards in place to protect employees and the public and to mitigate adverse impacts;
- ◆ relationship between engineering activity and the public at large; and
- ◆ significant role of regulatory agencies on the practice of engineering.

Acceptable experience in this area should foster an awareness of an engineer's professional responsibility to guard against conditions dangerous or threatening to life, limb, property or the environment, and to call such conditions to the attention of those responsible for them.

