PEO’s Engineering Work Experience Requirements Overview
Objectives

• Licensing requirements
  – Licensing process
  – Engineering experience
  – References

• Engineering Intern program
Licensing Requirements

- Acceptable engineering education
- Professional Practice Examination
- Good character (i.e. no criminal record)
- References (all supervisors, minimum of one P.Eng.)
- 48 months of acceptable engineering experience (12 months must be within a Canadian jurisdiction)
Regulating and advancing engineering practice to protect the public interest

PEO Licensure Process

- **CEAB Applicant**
  - Academic assessment embedded in the program

- **Non-CEAB Applicant**
  - Academic assessment by PEO required as per the Act

- **Assigned Technical Exams**
  - Exams waived
  - Not waived

- **Write Technical Exams**
  - Optional ERC Interview

- **Exempt from Technical Exams**
  - Failure to attempt PPE within timeframe or pass PPE within 3 attempts

- **Professional Practice Exam (PPE)**
  - Mandatory for all applicants – no exceptions
  - Two-year window to attempt PPE

- **Experience Assessment**
  - After completion of a minimum of 48 months of work experience
  - Failure to attempt PPE within timeframe or pass PPE within 3 attempts

- **Optional Staff referral interview**

- **P.Eng. licence conferred**

- **Does not meet requirements - file closed**

More experience required
Professional Practice Examination

• 3 hours total - Part A (ethics), Part B (law)
• 4 essay-style questions per section, similar structure each time
• April, August & December sittings + pilot
• Locations throughout Ontario & embassies around the world
• Exam samples available for purchase from PEO
Experience: Quantitative Requirements

- Minimum of 48 months of acceptable engineering experience (with at least 12 months acquired in a Canadian jurisdiction under supervision by a person legally authorized to practise in that jurisdiction)
- i.e. professional engineer
Pre-Graduation Experience

• Reg. 941 33. (1) 3.
• Eligible for credit up to 12 months after completing 50% of course work
• Not eligible for the required 12 months of Canadian jurisdictional experience
• Must be related to course and career
Engineering Master’s or PhD

- Completed degrees - credit of 12 months experience
- Same discipline or closely related to your bachelor of engineering degree
- Only one degree applies
- Not eligible for the required 12 months of Canadian jurisdictional experience
Acceptable Engineering Experience

Five required elements:

• Application of theory
• Practical experience
• Management of engineering
• Communication skills
• Social implications of engineering
Application of Theory

• Do I need my engineering studies to do my job? If so, how?

• Link your work to your academics; refer to specific engineering principles.
Application of Theory

- **Analysis**: scope, operating conditions, performance assessments, safety & environmental issues, technology assessments, reliability analyses, economic assessments

- **Design**: functionality, product specification, component selection, integration of components into larger system
Application of Theory

• **Testing methods:** devising testing methodology, techniques, verifying specification, new product/technology commissioning

• **Implementation methods:** applying technology, engineering cost studies, optimization techniques, cost/benefit analyses, process flow and time studies
Application of Theory

• What options were available to you?
• What important parameters did you consider?
• How did you make your decision?
• Why is the selected method appropriate under the circumstances?
• Who did you consult and how much assistance did you need?
Practical Experience

• Function of components as part of a larger system: merits of reliability, role of computer software, relationship of end product to equipment and control systems

• Limitations of practical engineering: production methods, manufacturing tolerances, operating and maintenance philosophies

• Significance of time: workflow, scheduling, corrosion rates, replacement scheduling

• Codes, standards, regulations, laws
Practical Experience

• What considerations did you have to make due to real world conditions?
• What codes and standards did you use as part of your engineering work?
• Why was it necessary to refer to these – what is the basis for these?
• How did limitations of time, material, personnel, etc. affect your engineering work?
Management of Engineering

- **Planning**: identifying requirements, developing concepts, evaluating alternative methods, required resources

- **Scheduling**: establishing interactions and constraints, activity schedules, impact of delays, interaction with other projects

- **Budgeting**: conceptual and detailed budgets, identifying labour, materials, overhead, cost escalation
Management of Engineering

• **Supervision:** leadership and professional conduct, human resources, motivating teams

• **Project control:** coordinating phases of project work, monitoring expenditures and schedules, and taking corrective action

• **Risk assessment:** operating equipment and system performance, technological risk, product performance, social and environmental impacts
Management of Engineering

• How do these concepts fit into the engineering work that you do?
• Are you responsible for controlling any of these concepts that affect other members of the team?
• Have your responsibilities increased in this area? How?
Communication Skills

- **Written work:** correspondence, design briefs, major reports

- **Oral reports:** coworkers, supervisors, senior management, clients, regulatory authorities

- **Presentations to the public**
Communication Skills

• How do you report your work?
• Any written reports? Who receives these?
• Opportunities for presentations?
• Participation in meetings?
• Any examples of having to promote your engineering ideas through a reporting mechanism? What was the result?
Social Implications of Engineering

- Value or benefit to the public
- Safeguards in place
- Relationship between engineering and the public
- Role of regulatory agencies
Social Implications of Engineering

• What are the potential effects, both positive and negative, of the engineering project?
• How are negative effects mitigated?
• Who are the end users of the engineering work?
• Were they consulted on the project? How?
• What involvement have you had in the process?
Describing Your Work

- Focus on what you did as it relates to the 5 criteria
- Structure your description to include:
  - **WHAT** you did
    - I calculated the total heat load on the reactor
  - **HOW** you did it
    - Using the theoretical heat of reaction
  - **WHY** you did it
    - In order to size the heat exchanger
Describing Your Work

WHAT  HOW  WHY
Engineering Experience Record

- Reverse chronological order
- Include start date (mm/yr) and end date (mm/yr) of each job
- Include all employers’ names and addresses (including country) for each period assessed
- Not a resume
- Include specific engineering work that you performed
- Explain the nature of problems you solved
- Identify design/analysis factors you considered
Referee Requirements

- Need your direct supervisor from each employer (job) covering the time of employment.

- **Minimum legal requirement:** one P.Eng. supervisor for one year.

- **Ideal goal:** one direct P.Eng. supervisor plus another P.Eng. familiar with your work, per place of employment, over the entire 48 months.

- Supervisors must be sufficiently familiar with the details of the candidate’s work.
EIT Program Benefits

- Use of EIT title (which shows that you’re serious about licensing and your career)
- Inclusion in PEO’s online members directory
- Review of work experience
- Individual licensing guidance
- *Engineering Dimensions* magazine
- Participate in local chapter
- Eligible to join OSPE and take advantage of their online career centre & other member services (insurance and investment plans)
PEO Contacts

- **Admissions Representative:** file status, address changes, etc.
- **Exam Centre:** PPE & technical exams
  - exams@peo.on.ca
- **EIT Unit:** quality of experience requirements, annual experience reviews, general questions
  - eit@peo.on.ca
- **Finance:** fees
  - financialservices@peo.on.ca