



PEO's Engineering Work Experience Requirements Overview



Objectives

- Licensing requirements
 - Licensing process
 - Engineering experience
 - References



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



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 Quality Criteria 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

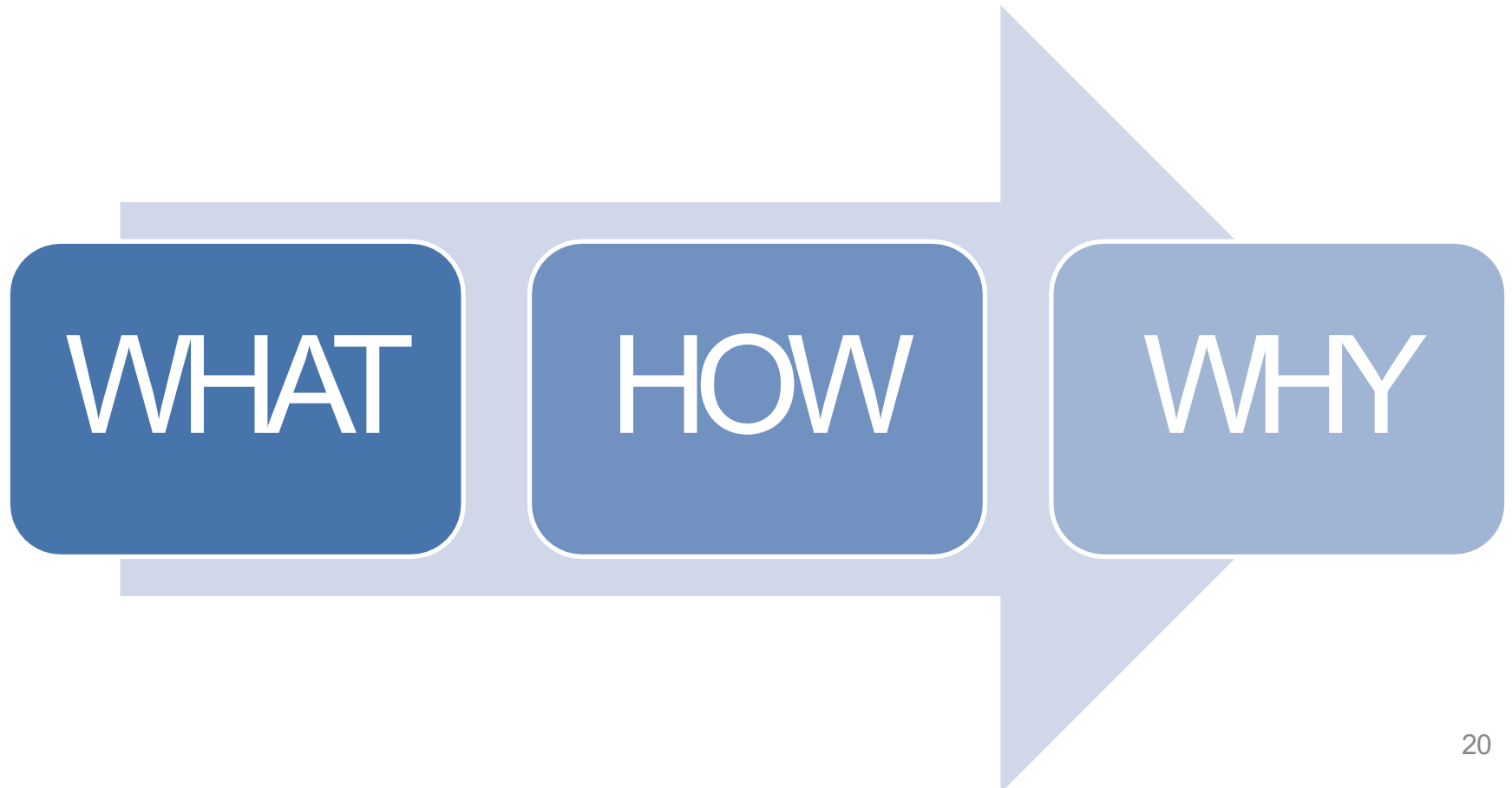


Social Implications of Engineering

- 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





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



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 applicant's work.