🏛️ Law and Ethics in Engineering Practice

Lecture: Ethical and Socially Responsible Engineering Behaviour

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1. 🎯 Objectives of the Professional Practice Exam (PPE)

- Understand the **Professional Engineers Act** and **PEO Code of Ethics**
- Make **ethical decisions** and **justify them logically**
- Develop professional judgement under legal and moral scrutiny

> "Ethics consists of knowing what we ought to do." – Socrates

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2. ⚠️ Real-World Ethical Failures

🔎 Whistleblowing:

- Faulty fuse panels caused **electrical fires** in Canadian homes

🔍 SNC-Lavalin (2013):

- **Padma Bridge scandal**, corruption investigation

🔍 Canadian Mining Abroad:

- **75%** of global mining companies in 2015 were Canadian
- **32%** involved in international legal conflicts

- **Cerro San Pedro Mine (Mexico)**: bribery, environmental destruction, no community consent

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3. 📜 PEO Code of Ethics – Duties to:

A. Society
B. Employers
C. Clients
D. Colleagues
E. The Profession
F. Oneself

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4. 🌐 ISO 26000 – Social Responsibility

- Not certifiable, but widely recognized
- Created by 500+ experts from 100+ nations
- Supports **sustainable development**
- Encourages legal compliance and ethical governance

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5. 🌱 Sustainable Development

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." – *UN Brundtland Report*

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6. 🏢 Organizational Ethics (ISO 26000, Clause 4.3)

Organizations should:

- Identify **core values**

- Prevent **conflicts of interest**
- Ensure **whistleblower protection**
- Use **governance structures** and **monitoring**
- Address **legal/ethical gaps** in different jurisdictions

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7. 🧠 Ethical Decision-Making Framework

- Consider impact on **individuals and organizations**
- Choose option with **least harm** and **greatest good**

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8. 💼 ESG and Business Value (McKinsey, 2019)

How ESG adds value:

1. Drives **top-line growth**
2. Enables **cost reduction**
3. Offers **regulatory advantage**
4. Increases **employee productivity**
5. Optimizes **investment and asset value**

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9. 🔍 ISO 26000 – Core Subjects of Social Responsibility

9.1. 👷 Labour Practices (Clause 6.4)

- **Fair employment** and job security

- **Safe working conditions** and **OHS**
- **Social dialogue** and **union rights**
- **Training and development** opportunities

📉 In 2020, **924 workplace deaths** in Canada:

- 611 occupational diseases
- 313 workplace injuries

9.2. 🌍 The Environment (Clause 6.5)

- Key threats: **climate change**, **pollution**, **habitat loss**
- Canada = **highest GHG emissions per capita** (G20, 2021)
- Doomsday Clock (2025): **89 seconds to midnight**

💡 **Engineers' Role**:

- **Mitigation**: reduce emissions
- **Adaptation**: prepare for climate impacts

9.3. 🏘️ Community Involvement and Development (Clause 6.8)

- Promote **local business development**
- Empower **marginalized groups**
- Encourage **resource efficiency**

🔎 **Case Study: Pikangikum First Nation**

- 16 youth suicides (2006–2008)
- Less than 150/500 homes had water
- PWG funded >$6M in projects (clean water, training, solar energy)

A model of **engineering for reconciliation, dignity, and sustainability**

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10. ⚖️ Social Justice in Canadian History

- **Systemic Racism**: e.g., Ontario Criminal Justice Commission report
- **Residential Schools**: 150,000 Indigenous children; 2008 federal apology
- **Persons Case (1929)**: Supreme Court ruled women not “persons”
- **TMU Renaming**: Ryerson linked to residential school model

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11. 🚺 Gender Equality vs. Gender Equity (ISO 26000)

- **Equality**: treating all the same
- **Equity**: fairness, giving people what they **need** to succeed

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12. 🌐 DEI: Canada vs. U.S.

- **U.S.**: DEI programs rolled back under Trump/Musk
- **Canada**: No DEI law, but corporate support strong (e.g., Apple, Costco, 350+ tech firms)

🧠 Review Questions – Hints

Question	Correct Answer	Explanation
Corruption causes loss in engineering?	**(e) All of the above**	Includes financial loss, human impact, and safety risk
"If it's legal, it's ethical"?	**False (b)**	Ethics ≠ legality
Ethics = values of the time?	**False (b)**	Social norms are not always morally right
Sustainable development is...?	**(c)**	Meeting current needs without harming future generations

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🛠️ Final Reflection: The Engineer's Calling

> "We begin to die the day we remain silent about things that matter."
> *— Dr. Martin Luther King Jr.*

Engineers must act with **courage**, **compassion**, and **conviction**—especially when lives, dignity, or the environment are at stake.