🏛️ Law and Ethics in Engineering Practice

Lecture: Legal Principles, Tort Liability, and Intellectual Property Fundamentals

Institution: Toronto Metropolitan University

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1. How the Law Applies to Engineering Practice

Applicability Across Engineering Disciplines

- Engineering disciplines affected:
    - Civil, Electrical, Mechanical, Computer, Aerospace, Industrial Engineering
- Common involvement:
    - Construction & Infrastructure Projects
    - Complex Contractual Arrangements
    - Project Management and Engineering Services

Key Point

Legal knowledge is crucial for engineers working within multidisciplinary projects and contracts to manage responsibilities and liabilities effectively.

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2. Canadian Legal System

Origins and Foundations

- Based on the English legal system:
    - **Common Law:** Judge-made law through court decisions.
    - **Equity:** Principles of fairness supplementing common law.

Theory of Precedent

- Courts follow earlier decisions for predictability.
- Flexibility via:
    - Factual distinctions
    - Equitable relief

Categories of Law

- **Common Law:** Developed by judges through decisions.
- **Legislative Law:** Statutes created by government bodies at:
    - Federal level
    - Provincial level
    - Municipal level
- Regulations supplement statutes.

Jurisdiction Between Federal and Provincial Governments

- **British North America Act 1867 (Constitution Act):** Defines powers.
    - Section 91: Federal government powers.
    - Section 92: Provincial government powers.
- **Constitution Act, 1982 and Charter of Rights and Freedoms:**
    - Constitution is supreme law.
    - Guarantees fundamental freedoms.
    - Includes “Reasonable Limits” clause and Section 33 (Override).

Court System Hierarchy

- Supreme Court of Canada (highest authority).
- Federal and Provincial Courts (Trial and Appeal levels).
- Specialized courts (e.g., Tax Court, Military Courts).
- Administrative tribunals for regulatory matters.

Court Participants

- **Trial:** Plaintiff vs Defendant.
- **Appeals:** Appellant vs Respondent.

Civil Court Process

1. Plaintiff issues Statement of Claim.
2. Defendant replies with Statement of Defence.
3. Discoveries stage (document and oral examinations).

4. Trial conducted with evidence and arguments.

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3. Business Organizations

Common Business Structures

- **Sole Proprietorship:** Individual-owned business.
- **Partnership:**
    - General Partner: full liability and management control.
    - Limited Liability Partner: limited liability, restricted role.
- **Corporation:** Separate legal entity with shareholders, directors, officers.

Key Legal Principles

- **Salomon v Salomon & Co Ltd (1897):** Corporation is a separate legal entity distinct from its shareholders, protecting personal assets from corporate liabilities.

Director and Officer Duties

- Must act:
    - Honestly and in good faith.
    - In the best interests of the corporation.
    - With care, diligence, and skill as a reasonable prudent person would in similar circumstances.

Selecting Business Organization Considerations

- Duration of business.
- Simplicity vs complexity.

- Tax implications.
- Liability exposure.
- Legal identity and ownership issues.
- Personal guarantees and property ownership requirements.
- Registration and compliance obligations.

Global Considerations

- Political risks in foreign markets.
- Differences in foreign legal systems.
- Licensing and regulatory requirements.
- Financial risks and contractual forms.
- Dispute resolution mechanisms.

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4. Tort Liability

Overview

- Tort: Civil wrong independent of contract.
- Purpose: Compensate victims, not to punish (criminal law covers punishment).
- Examples: Negligence, defamation, nuisance, strict liability.

Types of Legal Obligations

- **Contractual:** Voluntary agreements.
- **Statutory:** Obligations imposed by legislation (e.g., Criminal Code, Professional Engineers Act).

- **Tort:** Duties based on relationships, independent of contracts.

Types of Tort Liability

- **Defamation:** Harm to reputation via false statements.
    - Libel: Written.
    - Slander: Verbal.
- **Injurious Falsehood:** Harm to business reputation through disparaging remarks.
- **Nuisance:** Interference with use/enjoyment of land (e.g., noise).
- **Negligence:** Failure to exercise reasonable care causing harm.
- **Strict Liability:** Liability without fault (e.g., hazardous activities).
- **Vicarious Liability:** Liability of an employer for employee's actions.

Principles of Negligence

To succeed in negligence, the plaintiff must prove on a **balance of probabilities**:

1. The defendant owed a **duty of care** to the plaintiff.
2. The defendant **breached** that duty by failing to meet the standard of care.
3. The breach caused **damages** to the plaintiff.

Duty of Care

- Based on the **"neighbour principle"** (Donoghue v Stevenson): Must take reasonable care to avoid acts or omissions likely to injure persons closely and directly affected.
- Engineers owe duty both in contract and tort when providing professional services.

Standard of Care

- The skill, care, and diligence expected of a **reasonable professional** practicing in similar circumstances.
- Varies by:
    - Professional specialty (higher standard for specialists).
    - Risk involved (higher risk demands higher care).
    - Locality (availability of resources and expertise).
- Inexperience is generally **not a defense**.
- Professionals are **not guarantors** of success, only expected to meet reasonable standards.

Notable Tort Cases

- **Young v Bella:** Professors must exercise reasonable care before reporting potentially damaging information.
- **ter Neuzen v Korn:** Following accepted professional standards may not absolve liability if conduct is not reasonable in context.
- **Paxton v Alameda County:** Local professional standards define expected care.
- **Trizec v EllisDon:** Meeting standards of practice is sufficient to avoid negligence.
- **Brantford v Kemp:** Engineers must warn clients of known risks to avoid breaching duty.

Errors in Judgment vs Negligence

- An engineer who follows an accepted professional opinion, even if contested by others, is generally not negligent if acting reasonably.

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5. Intellectual Property (Chapter 33) – Overview

(Note: Specific content on IP was not provided, so below is a general framework.)

Intellectual Property (IP) in Engineering

- **Types of IP:**
    - Patents: Protect inventions.
    - Trademarks: Protect brands and logos.
    - Copyrights: Protect original works such as software and documentation.
    - Trade Secrets: Protect confidential business information.

Importance of IP

- Protects innovation and investment.
- Encourages disclosure and commercialization of technology.
- Engineers must understand IP rights to avoid infringement and protect their work.

Damages

Foundational Case: Donoghue v. Stevenson (1932, UK)

- **Facts:**
    - Plaintiff drank ginger beer containing a decomposed snail.
    - No direct contract existed between plaintiff and manufacturer.
- **Legal Significance:**
    - Established the modern concept of **duty of care** in negligence.
    - Manufacturer owes duty to ultimate consumer to ensure product safety.
- **Application to Engineering:**
    - Engineers can be liable in tort when they provide information or designs that others (e.g., contractors) reasonably rely on.

- Liability arises even without direct contractual relationship if reliance and foreseeability are proven.

Case: Winnipeg Condo v. Bird Construction

- **Facts:**
  - Building constructed by Bird Construction, later sold to a condo corporation.
  - Wall cladding fell years after construction; no contract existed between condo corporation and builder.
- **Legal Issue:**
  - Does a builder owe a duty of care to subsequent purchasers?
- **Decision:**
  - Yes. It was foreseeable that negligence in construction could harm future owners.
  - Contractor owes tort duty of care beyond the immediate contractual parties.

Strict Liability

- **Definition:** Liability without requiring proof of negligence or intent to harm.
- **Example:**
  - Worker's compensation systems where employers pay regardless of fault.
  - Ensures compensation for harm even if no wrongdoing is proven.

Vicarious Liability

- **Concept:** One party is liable for the torts committed by another due to their relationship.
- **Common Scenario:** Employers liable for employees' negligent acts ("deep pockets" theory).
- **Purpose:**
    - Encourages employers to supervise employees and reduce risks.
    - Employers are better able to compensate victims through insurance.

Case: Dutton v. Bognor

- **Facts:**
    - House built with improper foundations approved by negligent building inspector.
    - House collapsed.
- **Outcome:**
    - Contractor, building inspector, and inspector's employer held liable.
    - Employer vicariously liable for inspector's failure.

Limits on Vicarious Liability

- Only applies to employees, **not independent contractors**.

Case: 671122 Ontario Ltd v Sagaz Industries

- Consultant committed bribery.
- Court held no vicarious liability for employer because consultant acted independently.
- Key factors: control, tool ownership, profit chance, risk of loss.

Concurrent Tortfeasors

- Multiple parties can share liability for the same harm.
- Plaintiffs may sue multiple defendants who bear proportionate responsibility.

Case: District of Surrey v. Carroll-Hatch

- Architect and engineer liable for damage caused by poor soil tests.
- Liability apportioned 60% to architect and 40% to engineer.

Damages and Foreseeability

- **Foreseeability:** Damages must be a reasonably foreseeable result of the defendant's conduct.
- **Examples:**
    - **Barron v Barron:** Foreseeability considered with known history of driver's choking hazard.
    - **Mustapha v Culligan:** Psychological harm not reasonably foreseeable, so claim denied.

Economic Loss

- Financial or business losses, e.g., lost profits, repair costs.
- Not traditionally recoverable unless linked to physical damage.

Case: Hedley Byrne

- Established that negligent advice causing economic loss can be actionable if reliance on special skill is proven.

Application: Edgeworth Construction Ltd. v N.D. Lea

- Contractor sues engineers for financial loss due to errors in drawings relied upon in bidding and construction.

Product Liability

- Governed by **contract law** (warranties) and **tort law** (duty of care to users).
- Manufacturer liable to foreseeable users injured by defects.
- Liability typically extends to all foreseeable users, even third parties.

Duty to Warn

- Manufacturers must warn about inherent and foreseeable risks, even if use is unintended.
- No duty to warn about obvious dangers.

Case: Ho Lem v. Barotto Sports

- Injury due to user's failure to follow clear instructions.
- Manufacturer not liable because adequate warning was given.

Case: Rivtow Marine

- Manufacturer liable for failing to warn barge operators about crane defect causing economic loss.

Case Study: Roof Collapse

- **Scenario:**
    - Structural engineer firm hired indirectly through architect.
    - Recent graduate's deficient design ignored snow load requirements.
    - Roof collapsed nine months after building opened.
- **Legal Analysis:**
    - Tort liability exists even without direct contract.
    - Duty of care owed by engineers to foreseeable users relying on their designs.
    - Breach shown by failure to meet professional standards.
    - Damages include repair costs and lost business.
    - Vicarious liability: Engineering firm liable for employee negligence.

Intellectual Property Overview

Patents

- Protect inventions that are novel, useful, and reduced to tangible form.
- Last 20 years from application.
- Can be assigned or licensed.
- Employer-employee patent ownership varies; often assigned to employer.
- Remedies include damages, injunctions, and recovery of infringer's profits.

Case: Whirlpool Corp v Camco Inc

- Patented washing machine agitator with flexible vanes.
- Court recognized multiple separate patents and upheld infringement claims.

Trademarks

- Distinctive words/designs identifying goods/services.
- Registration valid for 15 years, renewable indefinitely.
- Rights can be licensed or assigned.
- Trademark infringement decided by likelihood of consumer confusion.

Case: Mattel Inc v 3894207 Canada Inc

- Trademark dispute over “Barbie’s” restaurant vs “BARBIE” doll.
- Court ruled no confusion likely.

Passing-Off

- Protects unregistered trademarks through common law.
- Requires reputation, confusion, and damage proof.

Case: Ciba-Geigy Canada Ltd v Apotex

- Prescription drug packaging caused confusion, court ruled in favor of plaintiff.

Copyright

- Protects original literary, artistic, musical works, and engineering plans.
- Term: life of author plus specified years.
- Includes moral rights (right to attribution and integrity).

Case: Cinar Corporation v Robinson

- Court found substantial copying of original children's story.

Case: Snow v Eaton Centre Ltd

- Moral rights upheld; ribbons added to sculpture prejudiced artist's honor.

Industrial Designs

- Protect novel, original visual designs applied industrially (e.g., Coca-Cola bottle).
- Term: 10 years non-renewable.

Trade Secrets

- Confidential business information (e.g., Coca-Cola formula).
- Legal protection requires proof of confidentiality and duty of confidence.