

# Engineering Ethics: Principles, Problems, and Applications

- Understanding Ethics in Modern Engineering Practice
- Presented by: Dr. Razib Hayat Khan
- Date: 09-May-2025

# What is Engineering Ethics?

- System of moral principles governing engineering practices
- Responsibility to society, clients, profession, and environment
- Goes beyond legal compliance

# Why Study Engineering Ethics?

- Upholds public safety and welfare
- Encourages sustainable and responsible design
- Builds public trust
- Prevents negligence and legal issues

# What is Ethics?

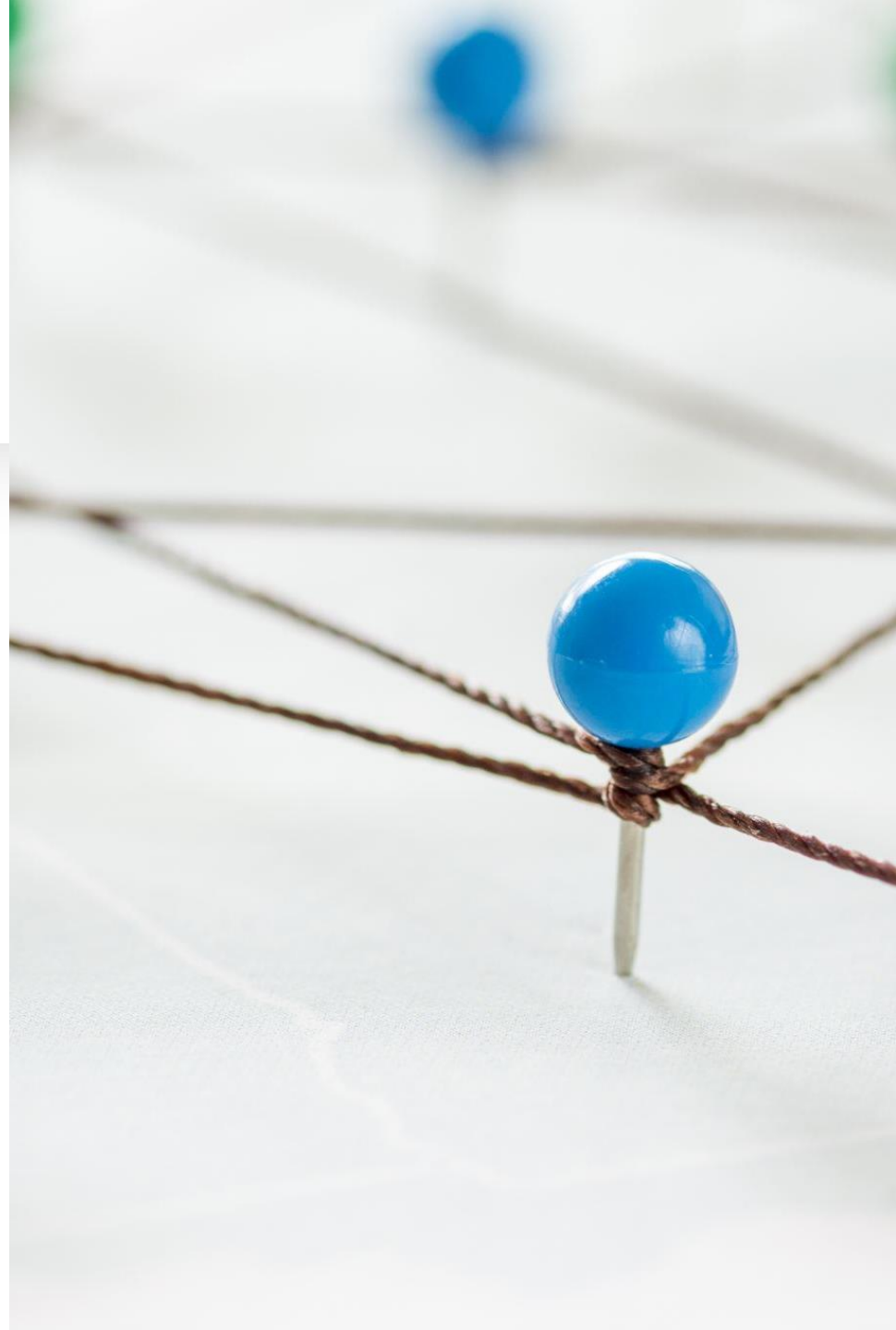
- Moral philosophy evaluating human actions
- Ethics systematizes, defends, and evaluates the right and wrong behavior of a person
- Branches of Ethics:
  - Meta Ethics
  - Normative Ethics
  - Applied Ethics (e.g., Engineering Ethics, Business Ethics, Bio-medical ethics)

# Core Branches of Ethics Explained

- Meta Ethics: Origins and meaning of ethical concepts
- Normative Ethics: Principles guiding right action
- Applied Ethics: Application in real-world contexts

# Real-World Engineering Ethics Example

- High-voltage line project
- Conflict: Public benefit vs. health and safety risks
- Ethical dilemma in project design and implementation





# Steps to Ethical Decision Making

1. Identify ethical issues and facts
2. Analyze options and consequences
3. Balance safety and feasibility
4. Communicate and implement decisions

# Importance of Engineering Ethics

- Public safety and welfare
- Framework for moral decisions
- Encourages sustainability
- Identifying and reducing hazards
- Protects and encourages engineers
- Promotes professional integrity



# Why Engineers Must Learn Ethics

- Maintain public safety and welfare
- Make decisions responsibly
- Protect the environment and promote sustainable development
- Maintain integrity in the profession and build public trust
- Maintain accountability and professionalism
- Resolve challenges that arise with technological development
- Helps in personal and professional development, etc.

# Pros and Cons of Engineering Ethics

## Advantages:

- Ensures safety and public trust
- Minimizes environmental harm
- Build public trust
- Prevents legal issues
- Culture of fairness, equality, and respect in profession

## Disadvantages:

- Not suitable to apply in certain situations
- Unethical corporate environment creates problems
- Conflicts with business goals
- Can be outdated or hard to apply

# Macro-Ethical Issues

Society-wide impacts:

- Environmental damage
- Public health
- Justice and fairness
- Social disruption

# Micro-Ethical Issues

Day-to-day ethical dilemmas:

- Misuse of IP
- Workplace behavior
- Client conflicts

# Applications of Engineering Ethics

- Academic development of integrity
- Balancing personal vs. professional ethics
- Handling real-life dilemmas
- Respecting IP rights
- Corporate social responsibility

# Final Thoughts

- Ethics is foundational to responsible engineering
- Empowers engineers to build a better, safer world
- Must evolve with technology and society
- “Engineers must not only do things right, but do the right things.”

# Q&A

- Any Questions?
- My email: [rkhan@iut-dhaka.edu](mailto:rkhan@iut-dhaka.edu)