

HUM 4441

Engineering Ethics

Introduction



Case Study

Rachel works as a **Quality Assurance Engineer** at a large electronics company. She is responsible for the final testing of her company's servers and is part of a team which decides when new products will be shipped to distributors for sale. Rachel's company has a third-party contract which makes the chips which are incorporated into the servers Rachel's company makes.

The business model for this product is to release a new generation server approximately every **six months**, meaning Rachel has a **limited timeframe** to conduct her Quality Control tests. Because there is such a short amount of time between the releases of each next new product, the QA department **cannot perform** every possible test on the servers to ensure they are defect free.

Rachel will not ship a product if there is any possibility that the server could malfunction and **cause physical harm** to the customer. However, she will ship a product that has minor likelihood of failure resulting in **data loss** for the customer, because she knows that if she doesn't, her company's competitor will.

What is Engineering Ethics?

Ethics

- The study of the characteristics of morals.
- Also deals with the moral choices that are made by each person in his or her relationship with other persons.

Engineering ethics is the rules and standards governing the conduct of engineers in their role as professionals.

Why study Engineering Ethics?

- Far-reaching impact in the society
- Can affect public health, business practices and politics
- Prevent ethical problems in corporation before they start
- Solving ethical dilemmas where answer is not clear
- Understand the expectation of employers
- Proper ethical solutions of complex problems

Managing the unknown as an engineer

01

How well does it work?

02

How will it affect people?

03

What changes will this lead to in society?

04

Is it safe under all conditions?

05

How severe are the safety concerns?

06

Is doing nothing the better option?

Personal VS Professional Ethics

Personal Ethics

- How we treat others
- Can also occur in business and engineering
- Choices on personal level



Professional Ethics

- Choices people make on an organizational level
- How our company treats others
- Relationships between two corporations, gov, or between group of individuals

Ethics and the Law

01

Role of Law in Engineering Ethics

Governed by international, federal, state and local laws

02

Legal but unethical

Designing a AI Robot which destroys humanity

03

Illegal but ethical

Buying marijuana for treatment

04

Ethical dilemma

When ethical views conflict and there is no legal guidance

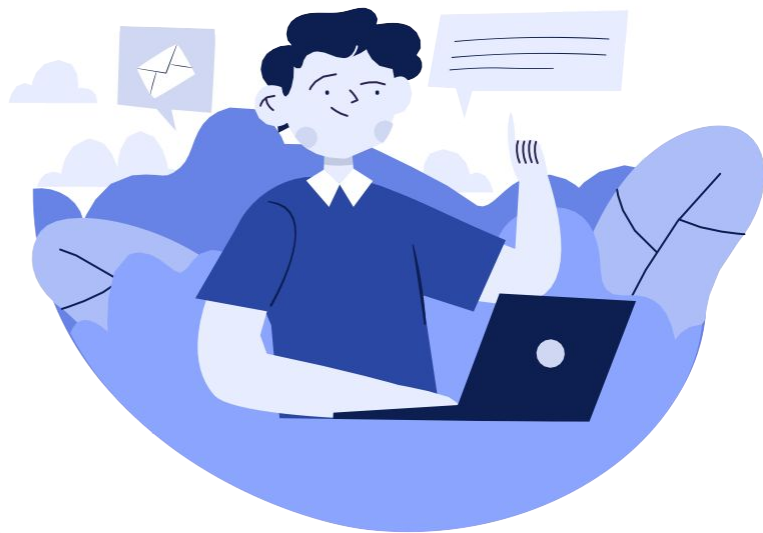
Ethical problems are like design problems

Design Problems:

- Has multiple solutions
- Some solutions are better than others

Ethical Problems:

- No unique correct solution
- extensive domain knowledge and analytical skills for the problem



Thanks!

Do you have any questions?