Ethics and Engineering

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Ethics and Engineering

Today, the philosophy of engineering is
where the philosophy of science was a hundred years ago.

Engineering should also include in debates on
the **Meaning of Actions**.

Auschwitz, Buchenwald Camps are great success?

Why engineers should not just act as **Technical Robots**'?

History of Engineering ⟺ History of Standardization

Tables, formulas or procedures defining safety, reliability,
convenience or other elements of good practice.
These standards cover everything from strength of beams
to be used in highrise buildings to the distance between
threads on a screw.

Ethics and Engineering

Where standardization is important,
that will be enough to justify following the present standard
until a new consensus emerges.

Generally agree that the **Safety**, **Health** and **Welfare** of the **Public** rather than
that of the **Client** or **Employer** comes first.

Whereas for Health Care Professionals,
the **Safety, Health** and **Welfare** of
the **Patient** comes First.

The public interest, like the interests of colleagues or other third-parties, is secondary.

Ethics and Engineering

What values does engineering incorporate?

Values such as **Efficiency, Safety** and **Honesty** are considerations to be taken into account in deciding what to do. They cannot, as such, be obeyed or disobeyed.

In contrast, **Standards of Practice**, including a **Code of Ethics**, do tell us how we should act.

Engineers define **Efficiency** so that they can measure it, assign numbers, and thereafter seek to control it.

Engineering tends to analyze a situation so that its distinctive skills can be applied. One of them is giving mathematical structure to practical problems. The concept of efficiency allows them to exercise that skill.

Development of Engineering Ethics Studies

1700s, Age of Enlightenment
Many Europeans first came to believe that enlightenment, that is, **scientific learning**, would **bring peace**, **prosperity** and **continuous improvement**.

With the Age of Enlightenment, people began to act on the **belief that the world could be made much better.** Engineering has this belief built into it.

The concept of engineering ethics has emerged with the aim of preventing the unrecognized rule that comes to the fore in the globalization process and organizing the competition within the profession.

Development of Engineering Ethics Studies

Unlike Medicine, there was no clear Request for Engineers to express their views on Ethical Issues affecting their profession.

Whereas, it isn't possible for a doctor to think about the ethical issues related to **abortion** or **euthanasia** around him/her

Similarly it is unacceptable for also an engineer not to think about equally effective and serious ethical engineering issues.

In other words, **it isn't possible for engineers to stay away from ethical issues more than doctors**.

History of Engineering Ethics Codes

In order for a job to be counted as a profession; professional knowledge should be used for an ethically commendable purpose and colleagues should be subject to standards collected under ethical rules.

Engineers lacked distinctive ethical standards, until the early 1900s.

They did not see the need.
There were relatively few engineers.
Seemed likely to continue to increase rapidly by 1900, most engineers were young.

Old systems of apprenticeship were being swamped.

Turkey/History of Engineering Ethics Codes

2003, Congress of TMMOB (Türk Mühendis ve Mimar Odaları Birliği); the title of "Professional Conduct Principles that the engineers should consider in their work, the task of developing 'Ethical Rules', which will guide their decisions in applications and audits, have taken place.

Emphasized that future engineers should recognize the effects of their work on society, their Resulting Personal Responsibilities, the Values that help them make decisions and ethical dilemmas.

For this purpose, it has been adopted to punish members who don't comply with professional ethics with sanctions up to dismissal.

… then all the chambers have determined ethical rules representing their engineering fields.

History of Engineering Ethics Codes

There were ‘Inconsistencies’…

*First codes were criticized almost as soon as they were adopted.

*Though they often speak of "Employers" as well as of "Clients" the early codes seemed designed primarily for the **Engineer who isn’t Dependent on anyone of them**.

***Engineers who are without significant management responsibilities**, seemed almost Forgotten.

*Sometimes One Code Permitted Conduct Others Forbad. Codes were undertaken revisions...

*Chief among the explanations often advanced for the number of codes is that engineering is simply too diverse for one code of ethics to apply to all.

History of Engineering Ethics Codes

Some engineers are independent practitioners.
Some are employees of large organizations.
Some are managers.
Many are closely supervised.
Some, whether in large organizations or on their own,
are more or less their own boss.

Engineering isn't a single profession
but a family of historically related professions.

Thinking of codes of ethics as moral rules rather than
legal rules seems to suggest new difficulties.
If codes of ethics are merely moral rules,
why worry about them at all?
Why should each engineer not let his private
conscience be his guide?

Why Engineers Should Obey their Profession's Code?

Imagine what engineering would be like if engineers did not generally act as the Canons require.

If engineers didn't generally hold paramount the safety, health, and welfare of the public, what would it be like to be an engineer?

The day-to-day work would be much the same.
But an engineer might be asked to do something which, though profitable to employer or client and legal, would put other people at risk, some perhaps about whom she cared a great deal.

Without a professional code,
an engineer couldn't object <u>as an engineer</u>.

The engineer would be under tremendous pressure to keep own "personal opinions" to oneself and get on with the job.

Why Engineers Should Obey their Profession's Code?

Engineer's interests would conflict with
own interests as a person; conscience etc.
No one wants to be forced to choose between conscience and self-interest.

Using a Code of Ethics

The more detailed a code, the more guidance…
Well, is this the right answer?
How are we to know we have?
We can go through a **Check list**.
But how are we to know that the list is complete?
Past experience is an indication, but now and then something unprecedented occurs. So, what are we to do?

In engineering ethics, **it is often easier to demonstrate the fault of alternatives than to demonstrate that this or the other answer must be right**.