What is "Engineer's Ethics"?

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1. Introduction

The EE fads was brought about by external pressure from US
This time, the black battle ship was Washington Accord, which is an international accreditation agreement for engineering degrees.
Established in 1989, the number of the sIgnatories is now over 16
Japan signed it in four years ago
Our counterpart organization responsible for accreditation is named JABEE, Japan accreditation board for engineering education.

- Criterion 1:
- (a) An ability and intellectual foundation to consider issues from a global and multilateral viewpoint.
- (b) Understanding of the effects and impact of engineering on society and nature, and of engineers' social responsibility (engineering ethics).
- (c) Knowledge of mathematics, natural sciences and information technology and an ability to apply such knowledge.

II. A Chaotic E^2 Scene in Today's Japan

- In Japan, E^2 started as a reaction to external pressure. So.....
  - 1) The Sense of Ownership on the side of working engineers is quite immature.
  - 2) Japanese E^2 concentrates exclusively on education and the codes of ethics
  - 3) There is no consensus on what to teach in E^2 Education.

Minimalism: There is no such a thing as E^2
E^2 as a kind of professional ethics
E^2 modified to fit to Japanese / Asian context
Maximalism: E^2 from a STS viewpoint

III. Making Engineering Ethics Work

- We need to switch gear.....
  - 1) from isolated trial-and-errors to collaboration
  - 2) from importing ready-made E^2 to locally-based production of E^2
  - 3) from the top-down instruction to the bottom-up construction
- in short, from reactions against external pressure to acting on an engineer's own initiative

IV. Engineering Ethics as a Social Movement

- We can draw valuable lessons concerning what is E^2 ....
  - not from textbooks
  - but from the history of formation of E^2 in US.

A very brief history of E^2

- 1930's ECPD (Engineer's Council for Professional Development) & NSPE (National Society of Professional Engineers) were founded.
  - They took a strategy that put a much stress on ethics
- 1971 BART (Bay Area Rapid Transit) Affairs
  - IEEE defended the engineers fired from BART saying that he acted according to the code of ethics settled by ECPD.

A very brief history of E^2

- 1974 IEEE and ECPD revised their codes of ethics to include "Welfare and Safety of the Public"
- 1970's E^2 courses started at several universities
- In this process, engineers and philosophers worked together

Lessons from History

- Constructing and giving a philosophical foundation to E^2 has been a part of engineers' movement aiming at improving their social status.
- E^2 should not be something taught to or imposed upon engineers from the outside.
- A better understanding of E^2 might be brought about by regarding it as a social movement.

V. Social Systems for Making E^2 Work

The Questions to be answered

- What is the aim of Engineering Ethics as a movement?
- Is US-style professional ethics suitable to pursue the aim (especially in the Japanese situation)?
- What should be done to bring forward Engineering Ethics movement, and by whom should it be done?

A Skeptical view to American way of E^2

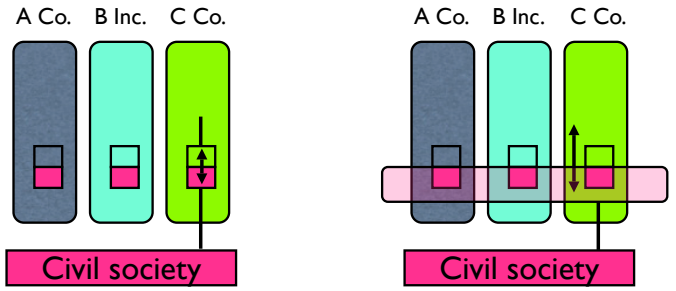
- E^2 as Professional Ethics can take one of these two forms
  - Individualistic E^2: Each engineer directly owes responsibility to the society
  - Nonindividualistc E^2: Engineers-as-a-whole owes responsibility to the society

- Individualistic E^2 is not only unrealistic but also harmful, because.....
  - (a) Engineers normally work as a member of a team
  - (b) It turns the problems which should be decided by a social decision-making procedure into moral dilemmas internal to an each engineer's mind

"Ethical Hero" Who cares?

- Roger Boisjory, William LeMessurier
- Case studies of an ethical hero surely stimulates students' motivation. But it provides working engineers with <u>few realistic advice</u>

- Engineers should form a more powerful social group to fulfill their professional responsibility.



Social systems which makes E^2 work are needed

The systems includes.....

- Stronger Professional Societies
- Legal Systems
- Grass-root activities in partnership with citizens
  - Technology Café @Nagoya

CONCLUSION

- E^2 is not a matter of each engineer's mindset / attitude / self-awareness.
- From an STS viewpoint, E^2 is a matter of an interaction of various stakeholders / social groups concerning technology, that is, E^2 is a matter of social movements.
- We should reexamine the concept of "engineer's social responsibility" from an STS viewpoint.
- In education, we should re-design the content and the form of E^2 curricula and courses.