

Ethical Component of Engineering Education

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Abstract — *Engineer's activity, as any other professional activities, needs not only technological competence but also observance of the norms based on values characteristic for social roles/duties fulfilled by engineers. This is the subject of Engineering Ethics.*

Index Terms — *Ethics in engineering education.*

SUMMARY

Engineer's activity, as any other professional activities, needs not only technological competence but also observance of the norms based on values characteristic for social roles/duties fulfilled by engineers. This is the subject of Engineering Ethics.

Engineering Ethics is a discipline that is busy with moral problems related to technology and engineering as well as to the contexts of their impact. The content of Engineering Ethics is situated in the crossroad of Ethics (moral philosophy), Philosophy of Technology, and Engineering Studies (knowledge of engineers' activities).

Although Engineering Ethics is a professional ethics of engineers, it is – according to many authors – related to management/business ethics as well, for engineers are either managers or make decisions of economic importance. Therefore moral aspects of engineering and business are mutual dependent, especially in relation to the issue of quality, production organization, and social responsibility of the effects of the products and procedures. Technology and the market are inseparable now, at the same time responsible behavior is more important than ever. Neo-Luddism has a point as long as technology and its commercial applications are not under responsible control.

Some of the important questions are as follows: Can we trust the producers of technology? Can we trust the users? When technology is commercialized, how are the relevant responsibilities created, distributed, and controlled? Are the free markets responsible at all, or is this notion already obsolete? Is the free world free in the sense that excludes responsibility and its ethics? Can we trust technological players? How the future engineers should get familiar with these and many other ethical component of their expected professionalism?

The importance of the moral aspects of engineering activity speaks for its presence in engineering education as a part of relevant curricula. Engineers should be educated as reflective practitioners. A reflective practitioner is an actor who has the following skills: (i) is able to acquire new abilities; (ii) is able to acquire new knowledge; (iii) is able to prepare an action conceptually (to design); (iv) is able to evaluate an action multi-dimensionally in the space of the “triple E” for effectiveness, efficiency and ethicality.

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