

# **ETHICS IN ENGINEERING EDUCATION**

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## **ABSTRACT**

In recent days ethics has proved to be one of the key issues before the public. In this context in universities categories, such as ethical disciplines, professional ethics, business ethics, and the commissions to watch proper behaviors to those categories are commonly brought into the agenda. Ethics is simply defined as a set of principles and values driving human behaviors. Thus, it is not only directly related to the socio-political, socio-economic and socio-cultural structure of the community in which man lives, but also strongly connected to the education having important place in socialization.

It is necessary to create an occasion to discuss profoundly on what are expected from ethics education, how to address the scope and content of the curriculum and what kind of methods are applied. Within the framework of this quest, ethics learning should aim to remove the remains of prejudicial behaviors, dogmas and taboos effecting student's life without applying pressure on his/her identity and privacy, and thus, to clarify the conditions of the methods to contribute to a great extent for socialization.

**KEYWORDS** Ethics in engineering education, Chamber of Electrical-Electronics Engineers, Ethics Commission, ethical education, professional ethics, ethics and morale, ethics education in universities

## **WHAT IS ETHICS?**

Ethics is a historical, dynamic and social process that emerges according to various factors, such as historical, social, political, economic and cultural factors. In this process man, as from his birth, internalizes and learns to share the values of the society and the culture which he lives in and he will assume as basis for his communications with the environment. This process named as socialization, develops and continues uninterruptedly during the man's whole lifetime. Violation of these ethical and moral values causes social reactions.

## **CHARACTERISTICS OF ETHICS**

Ethics are set of principles and values constituting the basis of interpersonal relations that regulate human behavior and manner of conduct. However, morals mean individual manifests of these behaviors and manner of conduct.

Ethics emerges in the social process of production relations as languages, religions, worship types, rituals, and traditions. Varying from one society to other,

ethics grow into dynamic social process by maturing from taboos and conditioning in time.

Ethics are directly interconnected to all categories within social, political and cultural structures of the societies. In other words, it is not a category that could be seen independent as reduced to certain behavior patterns. Also, ethics are not ready made moral prescriptions. Ethical values and principles could not be imported or exported, however they could take their place among the social values on condition that they are internalized while being transferred from one society to other during social relations.

The point they differ from the law is that they emerge as social reactions. The sanctions against violation of ethics are the manifestation of the attitudes developed by the society. Ethical problems and questions are those that men face directly in their ordinary lives. No human being could remain clear of the responsibility of making moral decisions and impartial in decision making process.

### **ETHICAL EDUCATION**

Briefly, learning is the whole of human relations. In social practice, family, immediate environment, school, office, all where human relations take place are the areas of learning, no matter positive or negative, and education is the act of constructing a systematic process of learning to a certain aim. The aim is to raise educated human force that would contribute to the social, economic and cultural development of the society.

In the socialization process systematic education or school has a significant place. A school child, in different cultural and language codes learns to question the cultural differences and the values of the culture he has inherited. This process where the child should be allowed to develop himself freely without any oppression, also constitutes the basis for ability to live among the different subcultures of the society without having any conflicts. The most significant period of this phase is that of primary and secondary education when the child goes through his adolescence. This period is also the one when a human's character starts to form. Young human starts university after the completion of this period. In other words, a human starts university having built up his basic character traits. University education is not a process that would cause significant changes in a human's character and values, but would play an important role in his socialization and cultural level.

Ethical education is strongly advised at universities. In recent years new categories, such as professional ethics, business ethics, political ethics, global ethics, etc

have been formed. Ethical education and ethics institutions seem to be the result of this development.

ABET recommends that the ethical responsibilities of engineers should be emphasized more in engineering programs. According to the ABET criterion and basic principles, engineers uphold and advance the integrity, honour and dignity of the engineering profession by performing services only in areas of their competence, being honest and impartial, respecting propriety rights, patents and confidentiality, seeking the welfare of the society and humanity and abstaining from causing harm to others.

The principles and codes set forth for engineers by ABET should actually be that of everybody, no matter what their professions are. Besides, every human being naturally assumes the responsibility of conducting his activities and communications in an ethical basis, without any particular moral understanding, so an individual first should form his/her ethical values and then position his/her own professional principles on them.

### **PROFESSIONAL ETHICS**

Professional ethics are a set of codes or norms that organizations such as companies, corporations and institutions require their employees to comply with. The existence and functionality of these rules are inevitable necessities and nobody could negate them. Namely, professional ethics are means of control and supervision which employers impose on their employees.

In formation and development process of every profession, some practical principles are formulated in order to sustain conduct of that profession. These codes or norms set forth as professional ethics are those that should be observed in the practical conduct of the profession formed in the process. These are sine qua non principles and don't lose their value if they are set forth and preserved as professional principles. Basically these principles are;

- Having the freedom of making decisions without any oppression and control of others,
- Having a will being totally free from control and oppression from any other authority i.e., being totally autonomous and self governing.
- Being not deprived of making choices among behaviors.

### **ETHICAL EDUCATION AT UNIVERSITY**

A young person starts his university education, having been socialized at a certain level and assumed a significant ethical and moral understanding of himself. University

education constitutes an important step for reaching a moral maturity as becoming social at an advanced level. Therefore, ethical education should not be the means for dominant economic and political authorities and their organizations to condition and mould men to make them adopt their value judgments they impose in line with their own ideologies. The sine qua non of the ethical responsibility is that an individual has his own independent and autonomous identity and character.

Of course, ethical education should not be considered only at professional scale. Primary education where the children form their character and consciousness of responsibility should be in such a way that it will serve as a basis for the university education. An individual should evaluate and solve humanly and moral concerns, problems that he faces during personal and professional relations and other dilemmas of life from ethical point of view. Generally, a young man who has such an educational background and accumulation of knowledge could perceive, discuss and solve most professional concepts much more easily.

Rather than considering the education as before university and at university, ethical education should be handled dialectically as a whole. Ethical education should not be considered as a class with diploma and grade concerns, but be widespread with means, such as meetings, forums, discussions, conferences, etc. Ethical education at university should aim to raise an individual who has the ability to decide freely and a high cultural accumulation and has completed the process of socialization.

R. Billington claims that moral education has the following four duties;

- Eliminating the prejudices about moral codes,
- Enabling children to distinguish the existent reconciliation on moral codes,
- Looking upon the existent values from a certain distance,
- Abstaining from choosing on behalf of the child between mores of different subgroups due to excuse that the child, in search of his identity will encounter the oppressions of the commercialized consumption society in addition to constructive changes.

The transparency, impartiality and objectivity, dignity, absolute and subjective meaning of loyalty to society, employer and client and values imposed implicitly or explicitly to this aim, set forth as grounds for ethical education should be defined transparently and clearly. That's why ethical education should be given with a scope of developing free and democratic societies instead of applying the chain of commands of some others.

## CONCLUSIONS

The precondition for a man to reach a moral maturity is to have his own independent character. Therefore, ethical education should be liberalizing and should serve to raise consciousness of respect to human and humanly values. The aim of ethical education is to bring up human beings who can interrogate whole events and facts on a scientific basis and with a sceptic approach under the light of critical mind, who can review, analyze and reach to a synthesis by discoveries and who is aware of his professional and social existence. For this reason before ethical education itself, convenient circumstances should be created to sustain an education on a ethical basis. We believe that an ethical education aimed at control and oppression of human beings is totally useless for a person, profession or even the society.

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