

Ethics and Values in Engineering Profession

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Abstract: Ethics and values are very important for a professional to prove their role in their profession and in all societal concern. Ethics teach us to learn and adopt principles, refine our personality, and teach us moral responsibility along with integrity. This paper focus on ethics and values in Engineering profession.

Keywords: professional, societal, principles, personality, integrity.

INTRODUCTION

Ethics in science and engineering has drawn greater attention. The destruction of space shuttle challenger, the launch of Chandrayan, the Hi-Tech reprehensible incidents unleashed by various terrorists' faction has only heightened the importance of professional ethics. This emphasis on ethics in science and engineering is an aspect of a broader social debate about personal and social morals in general.

Engineers, by and large, seek to apply their knowledge for a practical benefit of all people. Their hardest labors seem worthwhile not only because success can offer a civilized living, but also fruits their efforts can influence life in every career of the planet. This large sphere of influence makes working in ethical judgment as well as the technical judgment comes to play as soon as he or she finds his/her professional lives affecting other people.

There are three good reasons which are to be given importance in budding our ethical suits as over technical ones.

First, an individual's display of good ethical behavior leads to good consequences, both for the individual as well as the society. The benefits of good effects are felt immediately sometimes but in other times, the effect comes little later.

Second, the decisions made by this scientists and the engineers are crucial to the society at large, and therefore it shoulders an enormous burden and public trust.

Third, an engineer acquires happiness by analysis through a complex moral puzzle, by choosing a good course of action, and following through. For this happiness to be extended over a long period of time, education in science and engineering is expected to provide guidance in how to think about right and wrong. But it is not so, our society very much understands this fact and grudgingly accepts the

movie clichés of 'mad scientists' or engineers, who act as involuntary pawns of larger evil forces.

It is accepted that all of us receive a great deal of moral training from our parents. Primary and secondary educations do offer their bit and our religion offers the rest. However, the workplace in science and engineering presents a discrete set of ethical problem. These problems often prove quite complex, and we need approaches that rely on more than great instinct a simple rules learned in childhood.

Ethics :

In general, it is defined as "The discipline dealing with what is good and bad with moral duty and obligation.

Engineering Ethics :

It constitutes the rules and principles governing the conduct of engineers in their role as professionals. Engineering ethics encompasses the more general definition of ethics, but applies it more specifically to situations involving engineer in their professional lives.

Thus, engineering ethics is a body of philosophy indicating the ways that engineers should conduct themselves in their professional ability.

In this context, it is high time that we understand the significance of the term profession.

What is a Profession?

Well, the attributes of the profession include the following:

1. The effort requires refined skills, the use of verdict and the exercise of forethought. Also the work is not schedule and is not capable of being mechanized.
2. Membership in the profession requires widespread formal education, not simply practical training or apprenticeship.
3. The community permits unique societies or organizations that are controlled by associate of the profession to lay down values for admittance to the profession, to set standards of performance for members, and to implement these standards.
4. Major public gives high-quality results from their practice of the profession.

Now, having understood what a profession is, we must see who is a professional?

Athlete:

An athlete who is paid for their outward show is referred to as a professional athlete. Being a paid athlete does involve sophisticated skills that most people do not possess, and these skills are not capable of mechanization. The professional athletes are viewed as role models and are often disciplined for a lack of discretion in their personal lives. They require extensive training, not of a formal nature, but more of a practical nature acquired through practice and coaching. Thus, although they are highly trained and well compensated as they are professionals in the authoritarian sense of the term.

Carpenter:

Likewise, carpenters require extraordinary skills to perform their jobs, but many aspects of their work can be mechanized and minute judgment or discretion is required. Although, carpentry does meet an aspect of the public good providing shelter in elementary to the society, it still does not meet the necessities of a profession.

Medicine:

The practitioner of medicine is definitely a professional. This profession requires very refined skills that can't be mechanized, it requires judgment as to suitable treatment plans for individuals' patients and it requires discretion.

Lawyers:

Lawyers are professionals as this profession requires a sophisticated skill acquired through extensive formal training, and serves an important aspect of the public good.

Engineering as a profession:

Like medicine and law, it is time to consider whether engineering is a profession. Yes, engineering is very much a profession as it requires extensive sophisticated skills. The core of engineering design in judgment: how to use the existing materials, component devices... etc to reach specific objectives. Discretion is very much required in engineering. Engineers are required to keep their employers or clients' scholarly property and business information confidential.

The primary concern of any engineer is the safety of the public that will use the products and strategy the designs. There is always a trade off safety and other engineering issues in a design requiring discretion on the part of the engineer to ensure that the design serves its purpose and fills its advertised niche safely.

Core qualities of professional practitioners:

Professional practitioners, of all disciplines, need six core qualities:

1. Integrity - Openness and honesty, both with themselves and with others.
2. Independence – To be free of secondary interest with other parties.
3. Impartiality – To be free of bias and unbalanced interests.
4. Responsibility – The acknowledgment and acceptance of personal commitment.
5. Competence – A thorough knowledge of the work they undertake to do.
6. Discretion – Care with communications, trustworthiness.

Now, let us analyze all these six qualities individually.

Integrity: It involves the discovery and communications of truth. It is not simply trustfulness or avoiding telling lies, but the capacity to communicate the truth in such a way as to facilitate the client and others to make well-versed decisions. Honesty and integrity are essential for the development of trust.

Independence: The professional is independent of pressure groups. To be involved with either the employer or an action group in such a way that professional judgment is clouded is to lose professional autonomy. To achieve this independence, must understand this situation and the key players in that situation. Independence enables the person not to be drawn into the concerns of any particular group.

Impartiality: This particular trait enables a professional to fulfill his contracts with his client, and to treat all parties equally, there is no need to give dominance to self-interest, self-advancement, pressures of management roles, since in so doing, priorities for attainment of programmes and cost targets may cloud professional judgments.

Responsibility: It involves the realistic assessments of skills and capacities and the acceptance of their possibilities and limitations. This is a core virtue enabling the professional to acknowledge the responsibility and to work as a team.

Competence: Perseverance is necessary for the acquisition of technical ability and for its application in solving technical problems. This involves the capacity to strive for and to maintain competence in professional practice.

Discretion: In the course of projects, the professional will become aware of many aspects of the affairs of clients, contractors or other interested parties, and for him to retain the essential trust of those parties is important.

On the whole, an engineer is expected to play a multi-faced role in the society.

He can be a

Saviour: The engineer as the key player in the creation of a society with the development of technology and material prosperity for all.

Guardian: He ensures the best interest of society, based upon engineering knowledge.

Bureaucratic servant: A servant to managers, translating directives into achievements.

Social servant: An obedient social servant to others.

Game player: He plays to political and economic game rules.

In all these the engineer acts in different capacities; he is a consultant, an employee, a manager and an employer. Hence the engineer is expected to exhibit all these human values so as to become a professional.

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