HUMAN VALUES IN ENGINEERING

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Abstract

Engineers as specialists regularly have to deal with different circumstances in their careers when certain values turn into adaptable characteristics in the managerial procedure. Actually, the ethical characteristics of a decision often turn out to be more challenging than the technical ones. Engineers should be conscious of their social duties. For this reason, they need to improve their comprehension of the ethical and social consequences that might occur intheir career. This article highlights some of the most important characteristics that people involved in engineering, and other professions as well, need to develop in order to maintain a friendly and trustworthy climate in the institution where they spend most of their professional life.

Keywords: engineering, ethics, empathy, technical, professional

Ethics has occasionally been regarded by engineers as a fairly mysterious abstract feature of philosophy which has only slight significance to their applied activities in a company. "Ethics is in essence practical, for the way in which we choose to act and live is the primary objective of such analysis and contemplation". Ethical decisions, similar to engineering decisions, might have noteworthy consequences for our comfort and security. Ethics can also refer to how we behave in relationship to other people. In these cases, various difficulties might occurdue to quite a few reasons, namely: inadequate resources and inadequate consideration leading to competition and dissension instead of reciprocally advantageous support, partial agreement on objectives and diverseideas of *worthy*, insufficient wisdom, deficient data and inadequate understanding, not to mention the lack of communication.

Why should Engineering Ethics be studied?

In *Professional Ethics and Human Values in Engineering*, Jayakumar highlights the following features regarding engineering ethics: "Engineering ethics is the activity and discipline aimed at understanding the moral values, resolving moral issues in engineering, and justifying moral judgements concerning engineering. In other words, engineering ethics is a body of philosophy, which indicates the ways through which engineers should conduct themselves in their profession. Thus the study of engineering ethics is very essential for all engineering students to become a successful professional".

Engineering ethics is significant sinceit brings a valuable contribution to safe and beneficial technological products and it also highlights engineers' accomplishments. It is also intricate and requires thoughtful consideration during a career, starting with getting a degree. None the less, the target is to improve our skill to manage moral complexity in engineering in a successful way. Hence, the study of engineering ethics supports our

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capacityto judge moral matters plainly and wisely, the most significant aim regarding the development of moral autonomy. Moral autonomy can be considered the ability of thinking reasonably about ethical topics starting from moral faith fulness.

Teamwork

Peoples hould learn how to work in a team because it gives both power and a feeling of accomplishment in carrying out a task and contentment in being involved in a cooperative work and fulfillment. Without teamwork we would experience disorganization, misunderstanding, insufficiency and fear of not succeeding in performing the assignment. Cooperative work can have as a result the enrichment of such organizations which are representative as far as collaboration among its members is concerned. When there is no collaboration it is impossible to hold scientific workshops, conferences, symposiums and so forth.

A team of experienced engineers together with skill ful workers can bring to light the effective manufacturing of a product through mutual efforts, support and commitment. What engineers need to learn in order to be able to be part of a team and to be efficient as part of that team refers to the following characteristics: communication, coordination and cooperation with several other departments in order to carry out anassignment.

Empathy

We can define empathy as the trait which is connected to the aptitude to understand other people's feelings. Empathy relies both on our capacity to recognize someone else's feelings and on our capacity to see things from the other person's perspective and to experience asuitable emotional reaction. Hence, we can define empathy as the facility to perceive what other people feel and to experience that particular feeling ourselves.

Components of Empathy

Jayakumar suggests in *Professional Ethics and Human Values in Engineering*the following features as basic elements that should be taken into consideration when we refer to empathy:

- " Imagination which is dependent on the ability to imagine;
- The existence of an accessible Self (self-awareness, recognizing the outside world);
- The existence of an available other (other-awareness, recognizing the outside world);
- The existence of accessible feelings, desires, ideas and representations of actions or their outcomes both in the empathizing Self (Empathor) and in the Other, the object of empathy (Empathee);
- The availability of an aesthetic frame of reference;
- The availability of a moral frame of reference."

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Advantages of Empathy

To begin with, people need to be aware of their feelings in order to practice empathy. We cannot understand the person next to usand we cannot help him/her if wedo not understand ourselves and if we are not aware of our emotions and experiences first. Accordingly, we need to know ourselves inside outso as to be able to open up to others.

Moreover, we are offered an opportunity to learn new things about ourselves, to evolve and to grow by understanding different perspectives and experiencing emotions with others. Empathy opens both our souland our feeling of awareness, it helps us to accumulate more evidence, to learn how to regard things from a different standpoint. If we are able to find understanding and communication with someone next to us, we will also be able to comprehend things from his/her perspective.

In addition, one of our basic psychological needs is relating to others. We are social beings, so we are created to have interactions with the people next to us, to connect to each other in order to survive. Our own contentment depends on the ways in which we deal with those around us, our family and friends, people that we can trust, people who make us feel protected and special.

People who are open minded are more sociable, they belong to an extended group of friends, have many acquaintances and are undoubtedly more flexible in their personal or professional life. But being more open minded in the sense of empathy helpsus to relate more easily and even diminish the number of conflicts in our life.

Furthermore, empathy helps us to become more creative and dynamic in our career, maintain a good relationship with our colleagues, and thus our professional connections will improve. But in order to do that we should give up on criticism and judgment, attempt to understand the situations from the others' perspective. Since it is inconvenient to work with people who do not appreciateus and are reluctant to understand our motivations, thus leading to extremely high tension due toun important matters.

Alternatively, an empathic superior can certainly understand that we need time for our family, or to recover after a difficult or busy period at work. Sometimes he/shemight also understand why our colleagues regard our endeavor as a mistake, when we actually regard it as an opportunity.

Professional Collegiality

Fundamentally, there is no regular definition to clarify what it means to be a good colleague at work, instead we can follow certain rules which have not been written yet, but which are linked to our common sense and our desire to have a friendly and civilized climate at work. This defines our character, relies on our attitude and the respect that we normally show our colleagues, which is strictly interconnected with our communication skills and the way we regard the interpersonal relationships.

If there is such a situation at work where we have to object to a certain issue, we need to handle this situation with tact and good judgment, to try to avoid denigration of our colleagues and always maintain a positive attitude. It is also essential not to conclude

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anything before considering all the aspects of that particular issue, while carefully analyzing the situation of that person and trying to understand his/her reaction.

At our workplace, if we want to show understanding and to be understood, we should strive to cultivate the following characteristics: honesty, collegiality, an attitude which does not take account ofirony, duplicity and superiority, and last but not least to endeavor to dispose of individualism.

Accordingly, we can conclude that in order to develop the feeling of collegiality it is required to keep in mind,to begin with, that we are all human beings and we have to respect both ourselves and the people we come into contact with, be well-mannered, with no resentments and try to be supportiveeach time we have the opportunity to reveal this character trait.

On the subject of collegiality Jayakumar emphasizes the following features:"In general, collegiality is the tendency to support and cooperate with the colleagues.According to National Society of Professional Engineers code, the collegiality should include the following three characteristics:

1. Engineers should not attempt to injure, unkindly or falsely, directly or indirectly, the professional reputation, prospects, practice or employment of other engineers.
2. Engineers should not untruthfully criticize other engineers's work.
3. Engineers should bring unethical or illegal practice of other engineers to the proper authority for action."

Conclusion

The work of engineers is very complex and consists of many essential characteristics that have already been mentioned in the present article, of which the most important one is communication both with their colleagues and with clients. Furthermore, the engineers' work has a direct connection to the society and environment that represent a source of information for them but also the most faithful critics of their profession. Engineers and their work are essential in all parts of technical, economic and social development.

The work ethic is a socialstandardthat supports being personally responsible for the workthat one performs and emphasizes the conviction that work has intrinsic significance. An engineer's job generally calls for technical skills and knowledge; nevertheless work ethic and work approaches are similarly important for success.

Another aspect that this article has taken care of refers to professional empathy, which helps us understand our colleagues better, it is a noble approach to improve relationships. But if weare too focused on ourselves and forget about the others' concerns, then we have a very restrictedperception that will not be beneficial for our professional relationships.

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