

The Role of Code of Engineering Ethics in Projects



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The code of engineering ethics obligates engineers to be honest, considerate, and sensitive to the prevailing conditions surrounding their projects. Although engineers rarely talk about the ethics that they encounter on a daily basis, they nonetheless adhere to the moral principles that surround any profession in the world. Engineering ethics is similar to the general societal ethics but apply to engineers as they work in their places of employment. In this case, engineers are expected to uphold particular principles that will make their work safe, sustainable, and in line with the goal of making the lives of human beings better (Jr., 2008). It is imperative to recognize the practice of engineering happens within complex economic, cultural, social, legal, technological, and organizational contexts. Therefore, engineering must adhere to and synergize with each of the mentioned contexts for it to be considered a success. What then are the roles that the code of ethics of engineering supposed to achieve in a project? This article will evaluate how and why the code of ethics of engineering is crucial in determining the success of engineering projects.

First, code of ethics in engineering brings about honesty in projects (Loui, 2005; Orr, 2002; Geistauts, Baker, & Eschenbach, 2008; and Engineer, 2007). Professionally, engineers often encounter most of their work problems in black and white. Here, engineering problems are quantifiable in nature. Therefore, engineers are supposed to provide precise solutions to the challenges plaguing them (Seager, Selinger, & Wiek, 2012). For instance, an engineer can be aware that the construction of a dam on a particular location poses environmental risks that are catastrophic. At the same time, the dam has the potential to alleviate the water and electricity problems that are prevalent in the area surrounding the dam. Therefore, the engineer's technical knowledge will obligate the engineer to solve only the problem that appertains to water and electricity. In other words, the absence of ethics will put the lives of residents around the dam in danger as long as the engineering company considers building the dam as its only obligation. Therefore, such a situation is rarely witnessed because engineering ethics demands that any project should consider the social, legal, environment, and cultural ramifications (McDonald & Lawson, 2005). The need for honesty in engineering arises because engineers design systems that many people use in their daily lives. For instance, stadiums, bridges, and storied buildings carry a large number of people whose lives are dependent on the quality of the building to withstand various forces. Therefore, any poor craftsmanship on the part of the engineers involved in the design and construction of the building is likely to lead to the injury and death of these people. According to William Wilson (2013) the 1986 Chernobyl disaster is a testament to the results of dishonesty in the profession of engineering. Many investigative reports have repeatedly attributed the cause of this disaster to faulty designs in the plant's electrical system that was commissioned by stakeholders despite them knowing its faults. The honesty attribute in terms of engineering requires an engineer to be conscientious, confident, and truthful about one's technical competence (Abdul-Rahman, Wang, & Saimon, 2011; Hrubala, 2009; and Stappenbelt, 2013). Therefore, an engineer will be deemed honest if all the three factors above are satisfied by both the engineer's colleagues and clients.

The engineering code of ethics obligates an engineer to be considerate of the non-technical factors that surround one's project. As mentioned earlier, engineering problems are typically defined in terms of specific problems that need specific solutions. Therefore, engineering was an activity

exclusive to individuals and organizations who were entrusted to maintain individual responsibility, professionalism, and confidentiality (Son, 2008; Alhemoud, 1995; and Davis, 2002). However, an increasing number of incidences that were leading to problems in the sustainability of ecosystems because of engineering projects led to a rethink in the roles that engineers ought to play in the society. Initially lauded as technical problem solvers, engineers nowadays are required to consider the overall effects brought about on the society by their engineering works (O Clock & Okleshen, 1993). In this case, an engineering solution is not satisfactory if it did not involve the stakeholders from the community in which the project is occurring (Geistauts, Baker, & Eschenbach, 2008). In this case, the issues of cultural relativism gain prominence particularly in situations where the engineering projects are on an international scale. Here, an engineer is supposed to recognize that the decisions one will make in engineering practice will be subjected to descriptive relativism and moral relationalism (Yackel, 2002; Devon, 1999). Descriptive relativism implies that value beliefs and attitudes vary across one culture to another one whereas moral relationalism mandates that engineers ought to make their engineering decision based on the special cases they encounter in a particular place. Therefore, an engineer should consider both the overall cultural beliefs of the region one is working in but also incorporate the special conditions that are in a particular project (Frey & Neill-Carrillo, 2008).

Sensitivity in engineering is all about the engineer's responsibility to the moral obligations that each human being is supposed to uphold. These moral obligations include factors such as integrity, teamwork, loyalty, confidentiality, and voluntary adherence to ethical standards. The major issue in this case concerns the choice of on whether the engineer can become a whistleblower or be the custodian of confidential information that belongs to the company he is working for or providing consultancy. For example, should the engineer continue with a project that is evidently bound to fail because of the use of substandard raw materials or should the engineer withdraw from the project? Another concern may be an engineer's duty to report the company he is working for to the authorities for flouting rules and regulations or for an engineer to lodge an internal complaint to the company. All these issues concern the debate between the confidentiality of sensitive information and an engineer's duty to disclose information that relates to malpractices of a particular engineering firm that one is part of. In any case, the codes of ethic in engineering guides the engineer to make choices that will not harm either party (Byrne, 2012; Burgess, et al., 2013; and Stoffer, 2006).

In conclusion, the code of ethics in engineering provides a guideline for an engineer to consider as one encounters the myriad of issues in an engineering project. These issues include but are not limited to social, economic, technical, cultural, and environmental sustainability. All these issues concern the safety and soundness of engineering decisions. In this case, an engineer is supposed to demonstrate honesty, sensitivity, and be considerate to all the prevailing conditions surrounding the project.