Term Reflection

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What is an Ethical Engineer?

In today's world, where technology influences almost every part of our lives, being a moral engineer has significant meaning. Engineers have many obligations. Their work can improve lives. However, it can add damage if they no longer act responsibly additionally. As generations become more innovative and better, it is essential to make sure that engineers make moral choices. Being an ethical engineer goes far beyond understanding how to create and construct different types of work. Their approaches make choices to protect humans in any way, the environment, and equity. Three main ethical thoughts, consequentialism, deontology, and distinctive feature ethics, help manual engineers in their work. Each idea is ethically unique, but in practice, a moral engineer uses a mixture of these concepts to make excellent selections. Consequentialism specializes in the effects of movements, which means that engineers should consider how their work will affect society and the environment in the long run. Deontology teaches us the significance of suggestions and responsibilities, making engineers understand what is accurate and wrong, irrespective of how it appears. Lastly, distinctive feature ethics highlights the person's tendency as an engineer to collectively enhance with honesty and integrity, which are examples I like as an ethical engineer.

In this essay, I will explain how those ethical thoughts relate to engineering. I will speak of three crucial traits of ethical engineers: integrity, responsibility, and courage. These ethics are essential for engineers nowadays as they move into demanding situations and strive to create a time that allows our society, even serving protection and ethics in concept.

Three Major Ethical Theories

Consequentialism is a moral theory that looks at the effects of actions. It judges movements as accurate or bad based totally on their results. For engineers, this indicates making choices that purposely create the maximum advantages for most humans while trying to limit harm. This is one of the ordinary methodologies of projects in sustainability, public safety, and environmental protection in which the benefits to society can be incredibly reasonable. For example, an engineer working on a new public transport system may reflect that he or she is potentially helping reduce traffic jams among site visitors, decreasing pollution levels, and making people's lives easier moving around underserved areas. By focusing on these

advantages, the engineer aims to limit bad results, including the capacity displacement of local citizens or disruptions to corporations at some stage of working.

Deontology is a moral concept based totally on policies and duties. In this view, movements are right or wrong based on whether they follow ethical principles, irrespective of the final results. For engineers, this method frequently sticks to protection requirements, rules, and ethical recommendations, although doing so costs more time or money. For example, believe an engineer running on a brand new product that calls for thorough testing for protection. The engineer might insist on finishing all essential opinions if the project manager skips a few assessments to meet a tight cut-off date. This act towards protection rules exhibits their grasp of responsibilities concerning customer protection and providing a harmless product, sometimes at variance with management's view.

Virtue ethics concerns itself with the individual of the character making the choice. Instead of looking at effects or recommendations, this precept emphasizes wanting to extend the correct inclinations like honesty, braveness, and integrity. A moral engineer guided via high-quality characteristic ethics could make alternatives based on those traits, ensuring their man or woman aligns with moral values and letting them make suitable alternatives in challenging situations. For example, an engineer on an introduction assignment would say that a teammate is reducing corners on protection measures to save money and time. Even if it is miles from a method of dealing with backlash, the engineer will show bravery by talking up and insisting that everyone follow the safety suggestions. This movement illustrates that ethical imperatives bind them, and the individual is an essential aspect of their art. It also shows that great function ethics can lead them in the best ways possible.

Each of these different ethical theories plays a crucial role in the engineer's inspiration. Whether focusing on the actual consequences of actions-consequentialism-on, hints-deontology, or on developing great individuals-one-of-a-kind feature ethics of these concepts can be used by the engineer to make decisions through challenging ethical situations on the job.

Three Characteristics of an Ethical Engineer

Integrity approach being sincere and sticking to sturdy ethical values in all elements of work. An honest engineer will no longer lie about their work, even if it would improve their undertaking appearance. Instead, they could be open about troubles and work to discover solutions. Integrity is vital because it builds consideration with the public, customers, and coworkers. As the analysis says, "The first duty of engineers needs to be to defend against harming the general public or taking unfair advantage of their specialized expertise and abilities to promote their gain" (Harris 154). This quote shows how crucial honesty is to keep the general public safe.

Responsibility is another example of the work that's done to impact others. They bear in mind the social and ecological consequences of their decisions. When an engineer, for instance, is designing a new product or challenge, he should remember how long the materials will last

and their impact on the environment. The study expounds that "professional ethics encompasses more than preventing screw-ups and professional misconduct. It also includes what might be termed 'aspirational ethics,' particularly the use of professional expertise to promote the human good" Harris 155. The financial take for the power plant was further proved to be unfeasible as not enough customers could be rounded up to justify the construction costs. Further, the text reiterates that "engineers shall not accept bribes, undisclosed conflicts of interest, practice on work for which they are not qualified, or falsify records to clients, employers, or the public" (Harris 156). All these findings point toward the engineers' obligation to be ethical.

Courage means standing up for what is right when things get tough. A moral engineer may wish to speak out against their boss or shareholders when asked to do something dangerous or cut costs on the cost of safety. Engineers must have the courage to talk out in these situations because they regularly experience stress, challenging living true to their ethics. The analysis talks about "normalizing deviance," which means that human beings may additionally begin to take delivery of outcomes or engineering results that have not been what the fashion designer supposed. The textual content says, "an awful lot is made from the significance of being aware of the perils of 'normalizing deviance,' this is, finding out that the outcomes/results of an engineering work that the fashion designer had not expected are nonetheless ideal" (Harris 156). This shows how vital it is for engineers to be brave and maintain safety a priority. It also mentions that "precise expert judgment on this place depends upon training and on intimate exposure to applicable generation and its everyday functioning" (Harris 158). This highlights that engineers need to construct their courage through enjoyment and know-how.

In conclusion, integrity, responsibility, and courage are the three predominant precepts of a moral engineer. These tendencies allow the engineers to stand the complicated nature of challenges inside their work while paying significant attention to a society based totally on high stages of morality. Integrity will ensure veracity and transparency in the choices made by operating engineers, and responsibility renders them accountable for the consequences of their actions. Their bravery enables them to speak out and to take action against wrong conduct, even when external solid influences are applied. By acknowledging those values, engineers contribute to societal improvement and maintain the agreement with the investment of their careers.

According to the IEEE Code of Ethics, engineers ought to "maintain paramount the protection, fitness, and welfare of the public" in all expert work. This underlines the critical responsibility of an engineer to make sure his choices and designs are safe, dependable, and for the community's gain.

Justification of Characteristics

The characteristics of integrity, responsibility, and courage are vital in engineering for several motives. First, those trends contribute to the credibility of the engineering career. When engineers act with integrity, they gain the belief of the public and their customers. This

consideration is essential because engineering tasks impact people's lives and surroundings. Engineers who take responsibility for their work ensure safety is usually a concern, which helps prevent accidents and protects public health, as I said earlier, with IEEE. Courage permits engineers to arise for what is proper, even when pressured to compromise their values. Together, those traits create a strong and healthy basis for a career that humans can rely upon for safe and powerful answers.

It is the qualities that also become essential for any society. Ethical engineers contribute towards making technological advancement not only updated but also constructive and secure for every human being. By emphasizing sustainability for the protection of the public, they contribute to building a future in which the era of supporting the common good. When engineers remember that the output of their job is long-lasting, they work on developing a healthier environment and quality of life for all people. Such awareness of ethics in engineering will ensure that this development does not come at the price of humanity or the planet.

List of a Few Activities I Enjoyed

In class, we explored a lot of thrilling subjects, starting with the trolley problems. We pointed out specific situations where I had to make tough moral decisions, deciding between saving one person or getting involved and saving more people, which made me consider the complexities of moral reasoning in real-life engineering contexts. In another one, we mentioned pizza transport, but it was not pizza. It was about logistics and optimization. I considered how to solve real life problems like delivering pizzas efficiently while preserving customers' happiness and how this could apply to more extensive systems where timing and price-effectiveness are crucial. Finally, we analyzed the case of Buffalo Computing, a business venture that produced a calculator chip that calculated 17 good-sized digits of precision. After distributing over 5,000 beta versions, they found table errors for floating point operations, affecting the calculation in the prominent 13th to seventeenth significant digits. This situation shows us the importance of thorough testing and exceptional engineering checks, especially regarding accuracy. Overall, the class gave me a threat to mirror ethical dilemmas, practical problem-fixing, and the future of computing, multi-function consultation.

Conclusion

For me, integrity, responsibility, and courage are not simply phrases. They are the values that outline how I want to become a better professional as an engineer. I accept as accurate that those traits are crucial if I am going to make an actual difference, no longer just in solving technical issues but in thinking about how my work affects people's lives. I want to be an engineer who thinks about the ethical aspect of each selection, takes responsibility for successes and mistakes, and dares to talk. At the same time, something doesn't feel right, even if it is challenging.

The IEEE Code of Ethics states, "Uphold the highest standards of integrity, responsible behavior, and ethical conduct in professional activities." and emphasizes that engineers must "maintain paramount the safety, fitness, and welfare of the general public." These words surely stay with me because they always jog my memory that every little thing I do as an engineer is not creating new technologies. It is highly relevant to ensure that those technologies will be safe and of value to all people.

These values will guide my actions in every situation in the continuation of my career. I understand that challenging circumstances obtained from this line of job are usually clean; however, by upholding in integrity, responsibility, and courage, I plan on contributing to a career, putting the safety and well-being of human beings first, and creating an acceptable difference within the community. I'm glad to share what I thought about what an ethical engineer is.

Citations

Harris, Charles E. "The good engineer: Giving virtue its due in engineering ethics." Science and Engineering Ethics, vol. 14, no. 2, 7 May 2008, The Good Engineer: Giving Virtue its Due in Engineering Ethics | Science and Engineering Ethics.

IEEE - IEEE Code of Ethics, www.ieee.org/about/corporate/governance/p7-8.html.It was accessed on 17 Oct. 2024.