

CprE 394 – Ethics Essay
Sean Gordon (Sgordon4)

As engineers, the concept of ethics is intertwined with everything that we do. Ethics plays an immensely important role in the proceedings of projects and similar initiatives, resolving key decisions and acting as a force to keep corner cutting in check. It presents itself so often however, that major reflection happens commonly only in the beginning of a life or career, with an individual returning to previous templates to solve dilemmas without growing and refining them. As one takes on responsibility, it is ever more important that ethics be revisited again and again, refining templates to ensure that problems are solved or avoided long before they arise.

It was with this in mind that my classmates and I reflected on our understanding of codes of ethics and their impact on real-world problems. A code of ethics, while not all encompassing, is a good baseline from which to operate. Its purpose is to ensure everyone has the same minimum standards and that the most vital problems have been addressed. A code of ethics will do little good without a way to implement it however, so everyone needs their own framework to apply to unique situations. When personally faced with an ethical situation, I tailor a base sequence of steps to the situation's special requirements. I begin by taking stock of possible outcomes and the interests of all parties involved. I then weigh each outcome against an accepted base code of ethics, such as the IEEE code or the code the current workplace employs, and, if possible, omit any that breach it. I then choose the solution with the best outcome for the largest amount of people, with special considerations for the situation included.

An example of a common ethical dilemma is customer safety. The designers and producers of any product have an obligation to hold the safety of their customers at main priority. If a member of the product supply chain did not ensure safety to the best of their ability and a customer is harmed as a result of their negligence, that member is directly at fault. To guarantee quality and safety, a product must be thoroughly tested to ensure that

it meets agreed upon standards. As safety is of such importance, a great amount of thought has gone into correct procedures and things to avoid. As engineers it is our duty to educate ourselves on these aspects of our respective disciplines, whether it be in the design stage of a groundbreaking electronics technology to make sure nobody gets fried, or the fabrication stage of that technology to ensure all components are as specified, or even the design and fabrication of that fabrication technology to ensure the safety of the workers.

Ideally, safety concerns would be completely addressed for every project ever made. In practice however, this is not the case. One common case is safety vs profit, rearing its head time and again. In many cases, a good solution is hard or impossible to find, but for those of us in an engineering discipline, a good start would be applying the IEEE code of ethics. In the code, the first and sixth points respectively declare that members of IEEE must “hold paramount the safety, health, and welfare of the public” and “undertake technological tasks for others only if qualified”. A member of both a company and a of IEEE would have obligations to both hold to these points and to maximize profit. Safety takes a front seat compared to profit, but as you can’t make everything perfectly safe, once safety has elapsed any agreed upon standards or an extrapolation of them, other priorities such as maximizing profit can be focused upon more. Safety should be assured before maximizing profit, and in practice the design that meets all safety standards but maximizes profit should be sought after.

Following this thought experiment, an ethical issue discussed in class was the Grimshaw vs Ford Motor Company incident. The incident involved the Ford Pinto car, whose gas tank was placed in a vulnerable position that allowed for serious damages in the event of a rear-end collision. When the design and build process was reviewed, it was revealed that this issue was documented and understood but fixing it would result in a sizeable decrease in profits. However, the Pinto completely met safety standards, as at the time there were no standards for side or rear impacts. The calculations for the cost vs benefits of repairs were also done using publicly agreed upon metrics, this time from the National Highway Traffic Safety Administration (NHTSA). Therefore, this situation meets

the standards laid out in the paragraph above, as with the car already meeting safety standards the company worked on maximizing profits.

When discussing this situation with my classmates, the point of the dated safety standards was brought to my attention, one that I would not have thought of otherwise. The fact that the cost metrics were not determined internally was also noted, although we all agreed they seemed strangely low. We agreed that safety was priority and that Ford performed badly in this situation, but that they followed correct standards. We decided that, although hindsight is 20/20 and this was likely impossible to see at the time, Ford should have made more of an effort to push safety standards above what was required, ensuring the Pinto met the 20-mph standard for forward collision, but also its own 20-mph standards for side and rear collisions by implementing one of the lower cost fixes. This would have greatly lowered the chances of catastrophic failure, bringing safety to a higher standard while keeping profits at an acceptable level.

After the case study above, we were presented with *Virtue of Ethics* and asked to choose three of the six virtues most closely related to the study. I chose integrity, honesty, and responsibility, as I felt they were disregarded the most. Integrity highlights the weakening of strong moral principles in the case, honesty targets Ford's failure to notify the public about the vulnerability, and responsibility emphasizes that Ford likely failed to meet its own moral standards of dependability when creating and selling the Pinto. I felt the other virtues were less relevant because they build off the three I chose and, although they applied to the study, they were not breached as severely. If there was another virtue I would apply to this case, it would be to hold yourself – either company or person – at a higher level than is necessary. This may well have prevented the case, as non-standard safety standards for side and rear collision may have been enforced.

In the end, ethical considerations are immeasurably important, and great care should always be taken to refine and employ ethical standards. Codes such as the IEEE code of ethics can be a valuable guide for ethical practices, but a code cannot cover everything. Therefore, it is our duty to ensure we are well versed on correct processes in

our respective disciplines. The Grimshaw vs Ford case study is an example of a case that conformed to basic ethics and nothing more, and that sometimes we must go above and beyond to ensure aspects like safety are taken care of. Ethical practices are something that must be practiced constantly, and codes with high standards employed to ensure ethical decisions are always made

References

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