Examples from "Create Your Own Code of Ethics" Assignment

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July 15, 2011

Abstract

Over 300 university students in CE 703 Responsibility of Engineering: Codes & Professionalism, and in CE 704 Responsibility of Engineering: Leadership & Diversity created their own "Code of Ethics" at the end of the course. Some of the most common elements were: followed the NSPE Code of Ethics template, transforming the Boy Scout Law to apply to engineering, categorized their code into personal and engineering related, and the inclusion of religious beliefs. This proved to be a valuable experience that could be used as an ABET assessment mechanism.

Introduction

Many engineers and engineering students have asked me "What is ethics?" and "What does it mean in simple words?" I was recently asked these questions while conducting an engineering ethics workshop at the 33rd International Association of Hydraulic Engineering and Research

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Biennial Congress (Vancouver, BC; August, 2009). I have come to the following conclusion after many years of actively teaching engineering ethics courses and workshops:

> **"Ethics" are the notions, ideas and feelings that control a person's words, actions, decisions, and conduct.**

These ideas and feelings are developed by learning perspectives from our parents, experiencing life at all ages, studying religious beliefs, and formally studying ethics topics. I believe the following Code of Ethics examples illustrate the specifics behind this definition.

Code of Ethics Background

A Code of Ethics can provide some fundamental aspects to being a professional. Davis (1991) states: "...I will argue that a code of professional ethics is central to advising individual engineers how to conduct themselves, to judging their conduct, and ultimately to understanding engineering as a profession." The Institute of Civil Engineers (London, England) adopted a Code of Ethics in 1912. ASCE closely followed the format and wording of the Institute of Civil Engineers Code and formally adopted their Code of Ethics (below) in 1914. The ASCE established their code about twenty years before the NSPE adopted a Code of Ethics.

ASCE Code of Ethics (http://www.asce.org/inside/codeofethics.cfm)

> *Fundamental Principles*
>
> Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

1. using their knowledge and skill for the enhancement of human welfare and the environment;
2. being honest and impartial and serving with fidelity the public, their employers and clients;
3. striving to increase the competence and prestige of the engineering profession; and
4. supporting the professional and technical societies of their disciplines.

Fundamental Canons

1. Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development[3] in the performance of their professional duties.
2. Engineers shall perform services only in areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero-tolerance for bribery, fraud, and corruption.

7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

The ASCE Code of Ethics has been widely accepted, though they are not perfect. Griggs (2009) has recently critiqued the ASCE Code of Ethics thoroughly. The Code is written as obligations of the engineer, there are other ways to write a Code of Ethics that would be more personal and meaningful. Griggs also suggests the fundamental canons be written specifically on truth and trust issues. The specifics of how to practice engineering should be written as a guide to professional practice, not a Code of Ethics. Hopefully, the literature available on engineering ethics and professional practice issues will continue to grow. For example, the Waterways and Navigation Engineering Committee of the Coasts, Oceans, Ports, and Rivers Institute (ASCE) published *Navigation Engineering Practice and Ethical Standards* (McAnally, 2008). Gotterbarn and Miller (2009) have also recently published an article focused around "...making decisions using the software engineering code of ethics."

Course Background

The following Code of Ethics examples are from students that completed my CE 703 Responsibility of Engineering: Codes & Professionalism or my CE 704 Responsibility of Engineering: Leadership & Diversity graduate-level courses. There have been over 200 students to date that have completed one of these courses. Most of the students are working full-time jobs and pursuing graduate education primarily through online courses. CE 708 and 704 consist of lectures on related topics, review of case studies, and reading of relevant

references. The assignments are to summarize references, conduct interviews of engineers about ethics, consider ethical problems that have been faced, develop a 2-hr engineering ethics workshop, create and record a short skit on an ethics dilemma, and develop their own Code of Ethics. The following was provided to the students:

> **Create your "Code of Ethics" assignment.**
>
> Create your "Code of Ethics." You can use the other codes as a reference; however, I would like it to be *your* "Code." Please provide just the cannons, expanded explanations are not required. Up to about 2 pages in length.

Overall, students did a good job creating their Codes of Ethics (see Appendix). None were oppositional to the ASCE Code of Ethics. Many students closely followed the NSPE Code of Ethics (Example Code #1). These Codes were obligations oriented and covered similar topics to NSPE's Code, however in the student's own words. Many incorporated their religious beliefs into their Code of Ethics (Example Code #2). A few students broke up their code of ethics into categories: as a human, as an engineer and as a student (Example Code #3). Some students separated their code into work and personal categories (Example Code #4). Several students relied on their experiences as a Boy Scout (Example Code #5).

Interesting Elements

Example Code #1 rewords all six Canons of the NSPE Code of Ethics and adds a canon about continuing to acquire new engineering knowledge. The perspective is first person, which implies strong ownership of the Cannons stated. Since humans have gathered together we have shared meals and given gifts to each other. Yet, gifts are one of the most challenging

situations that engineers regularly come across. The giving of gifts to current and potential clients of consulting engineers, as well as the receiving of gifts if the engineer is in a contract-decision making position, can create ethical dilemmas. Student #1's Code specifically addresses gifts in his Cannons: "[I shall] not be influenced in my professional duties by conflicting interests or gifts." "They shall not offer any gift or other valuable consideration in order to secure work" is in the NSPE Rules of Practice. Both of these statements address the real concern—gifts that might impact an engineer's decision. Neither statement concludes that gifts are never appropriate or that there is a set value at which a gift becomes inappropriate.

Example Code #2 is totally different from the NSPE Code of Ethics format. Student #2 has written it in first person, included obligations and virtues, and has communicated his core beliefs as a human being. We are humans first, then engineers second (or later). Certainly religion promotes high ethical standards for believers and it makes sense believers would state religious ideas and concepts they are committed too. Example Code #2 includes religious statements such as "I will worship only the Lord God," and some of the cannons are centered on the 10 Commandments. Many students through the years have incorporated religious statements into their Code of Ethics. Some virtues Student #2 has included are "I shall respect my parents" and "I will act with integrity". Some of his core character beliefs are stated as "I shall avoid foul language", "I will be loyal to my nation" and "I will be happy with what I have."

Example Code #3 is also very different than the NSPE Code of Ethics format. Student #3 has stated that she is a human being first, then a student and engineer. She has included a

Preamble to provide an introduction to her Code. Many of her human being Code elements are virtues: "Treat everyone with respect…", "Work hard…", "Accept differences…" and "Learn from my mistakes…" She also states the importance she places on dressing appropriately to convey a positive "outward image." The next section of her Code is focused around being a student; at the time Student #3 wrote this Code, she was an undergraduate architectural engineering student. Along with work hard, treat others with respect, and never cheat, she also stated that she would "seek help when it is needed." This concept of directly asking other's for help to learn a subject matter is not reflected in the NSPE Cannons. The next section is "As an engineer, I shall…" She included "ask for help when needed" in this section also. A particularly unique aspect in this Code is Student #3's clear commitment to continually challenge herself.

Student #4 goes about creating his Code of Ethics an entirely different way. He included an introduction and then broke up his Code into 3 categories: General Rules, Work Rules, and Personal Rules. "Always use your internal moral compass" is not represented in the NSPE Code of Ethics. His work rules are focused around being productive and a good employee. The personal rules listed are big-picture elements: "know your limits," "follow your beliefs," "ensure your safety," and "avoid situations that challenge your ethical beliefs."

The Boy Scouts program has impacted millions of people. About 3 million youth participated in Boy Scout events in 2007 alone (Boy Scout 2007 Annual Report). I have never been involved with the BS, and when I started making this assignment, I was surprised to see how many working engineers reference the Scout Law in their Code of Ethics. Examples Code #5 is a typical Code I have received from people that have reached a high Boy Scout level, most often

Eagle Scout. The virtues that are listed in the Scout Law that are not mentioned directly or indirectly in the NSPE Code of Ethics are: helpfulness, friendliness, and personal cleanliness. I am very impressed with how important the Scout Law remains to adults with Boy Scout experience.

Student Comments

Students found this assignment interesting and valuable. Following are some specific comments from students about the Code of Ethics assignment and how their Code of Ethics would have changed during the duration of the course.

> *"If I had written my codes prior to the course I believe my list would have been much shorter and less detailed, as compared to my final product. Prior to the course I would not have thought about having a personal code that involved the acceptance of gifts, directly or indirectly. I took this course while having my first internship and witnessed a couple engineers go on a trip with an industry rep early in the summer, and didn't think much about it. As I continued with the class I realized how wrong the trip was, and [my colleagues] should have acted differently. I also would not have considered a personal code that stated; "I will not participate in deceptive or malicious acts in hopes to gain work", because this is not the way I normally act, and wouldn't have thought such a code would be needed. After taking the course I realize the extremities some professionals will go to, in order to receive work. This assignment helped me academically, as I strive to be a hard working student and abide by [my Code of Ethics]. "*

"Before [I took the course], I did know that there was a code of ethics for engineers, but I had never really taken the chance to look very closely at them. As most people will say, they do seem to be somewhat "common sense" type things but there really are situations that can be conflicting that can arise in the workplace … what I'm getting at is just the simple fact of getting familiar with the engineering code of ethics [is valuable] … In regards to the personal code of ethics assignment, I think that it was a great exercise … If [a person] can successfully [create a Code of Ethics using their own words] than there is a much deeper understanding of the background principles than…just reading over existing codes that someone else wrote."

"The code of ethics assignment was valuable because it can revitalize your belief in the profession after a particularly difficult day. It's comforting to know that when you have to make a difficult ethical decision you can always reference this assignment and review the issue according to the principles you developed. If I had written my code of ethics prior to this course I don't think I would have been as convicted in my belief in the code."

"The assignment to include your own Personal Code of Ethics was very important… The NSPE Code of Ethics we used for our coursework is very good and detailed, but at the same time was written by other people, and tends to get "wordy". Allowing us to write our own Code of Ethics allowed us to own our

standard of ethics based upon what we learned. Prior to taking the class, my Code would've been slightly different. My Code prior to the class would've focused on making sure that no people could be harmed, and to be honest, but I would've left out key parts, such as doing work in areas I have an expertise, and to continue to strive to educate myself."

"[If I had drafted my Code of Ethics] at the beginning of [the semester, it] would have been based solely on research conducted on the Engineering Code of Ethics. It would have only reflected the knowledge of ethics. After going through the course, my attitude changed after understanding my responsibilities as an engineer from various case studies. This would lead to a more personal code of ethics acknowledging my duties and obligations to society."

"The code of ethics assignment was thought provoking to say the least. First, I started with the obvious things, values I have, rules I follow, etc. Then I forced myself to look at how I currently live and compared it to how I want to live and be remembered. It was difficult to see the areas where I wasn't living up to my expectations. I immediately decided that it was time to make changes and change my path. To be honest, upon entering the class I had already thought about my life and changes I wanted to make. As a junior in college, I was starting to mature and think about where my life was headed. My human being and student sections of my code of ethics would not have changed greatly from the beginning to the end of class. However, I learned a great deal about professional ethics in the class and

without the class, I would not have been able to write the engineer section of my code of ethics. Personally, I think writing a personal code of ethics is an incredible assignment. It is easy to say what you believe and expect for yourself, but having a code of ethics holds you accountable to your expectations."

Conclusions

It is my opinion that this "Create Your Own Code of Ethics" assignment has proven to be a valuable experience for undergraduate students with limited engineering experiences, as well as for graduate students that have decades of professional engineering design experience. I recommend that students write their Code of Ethics in first person and include elements that are not directly related to engineering. Including elements outside of professional life encourages thinking about the bigger picture and makes their Code more personable and meaningful. There are a number of ways this assignment could also be used to help evaluate students on ABET 3f Criterion (i.e., demonstrate an understanding of professional and ethical responsibility). The simplest would be saving a sample of Code of Ethics from graduating seniors that would eventually be evaluated by ABET evaluators.

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Appendix

Five example "Code of Ethics" created by engineering students at XXXXX University.

Example Code #1.

Student #1 Engineering Code of Ethics
(Adapted from the NSPE Code of Ethics for Engineers)

Fundamental Cannons

I, in the fulfillment of my professional duties, shall:

1. Always hold paramount public safety and strive to ensure the safety, welfare, and health of the public.
2. Be truthful in my statements to the public, my clients, and co-workers.
3. Avoid any deceptive acts and not be influenced in my professional duties by conflicting interests or gifts.
4. Act for my employer or client as a faithful agent or trustee and not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer.
5. Perform services, review analyses, and make decisions only in areas of my competence and inform all parties involved of my limitations and ask for help from my colleagues and co-workers when necessary.
6. Continually strive to broaden my knowledge of the engineering profession as well as aid in mentoring younger engineers.
7. Act in a manner to promote and uphold the dignity and honor of the engineering profession by conducting myself honorably, responsibly, ethically, and lawfully.

Example Code #2.

My Personal Code of Ethics, Student #2

- I will worship only the Lord God. I will not worship boats, cars, homes, planes or any other things that I could chase after.
- I shall avoid foul language. It degrades the user as well as the listener.

- I will remember the Lord and worship him.
- I will respect my parents. Showing respect is not always easy, nor do I have to live their lives. They have earned respect and I will treat them with dignity.
- I will not murder. This ethic goes farther than actually striking someone down in rage. I will control my actions. I will avoid putting others in harm's way with my actions. I will not drink and drive. I will not attempt projects that I am not familiar with prior to receiving instructions. I will not act recklessly. I will not pollute the earth with deadly toxins.
- I shall love only one woman, my wife.
- I will not steal. I will not give less than a full day's labor for a full day's pay.
- I will not lie or allow lies and rumors to circulate.
- I will be happy with what I have.
- I will be loyal to my nation. Being a citizen of the United States demands that I follow the laws set before me by the President and other governing bodies. In addition I must exercise my rights and voice my opinion as well as cast my ballot on Election Day. If the political candidate that I supported does not get elected I will show respect to the elected leader.
- I will act with integrity. In today's world children need a beacon to follow until they can act as a beacon. I shall strive to be that beacon. In all that I do I shall ask, "Will this action provide a light for others to follow?" I will not try to hide my actions. My actions shall be able to be tested in full light.

Example Code #3.

Code of Ethics

For the Life of Student #3

Preamble: As a human being, there are specific standards that must be met. These standards are expected to be upheld constantly and consistently. In addition, as a student, there are different principles to be maintained, and these help establish a respectable reputation and ensure genuine learning. Lastly, as an engineer, there is a separate set of standards, which are

specific to the profession and in addition to all other standards and principles supplied by engineering organizations and laws. All of the standards in these three areas create one specific code of ethics for the life of [student #3].

I. *As a human being, I shall:*

1. Treat everyone with respect and treat them how I want to be treated by others.
2. Seek to improve and better my community and the people in it.
3. Be truthful, compassionate, and empathetic in all situations and everyone I come in contact with
4. Take responsibility for my actions and the consequences they have.
5. Work hard and diligently to achieve my goals, whatever they may be for my life.
6. Constantly seek to better myself and seek peace, wisdom, and happiness.
7. Learn from my mistakes and take every opportunity to learn from situations I experience.
8. Accept differences in others and myself and encourage the strengths in others, help when asked, and try not to judge people and things that may appear different.
9. Dress appropriately, for the outward image greatly affects first impressions.

II. *As a student, I shall:*

1. Work hard and do my best in every class, whether I enjoy it or not, or whether it is my forte or not.
2. Seek help when it is needed, from other students, tutors, teachers, etc.
3. Treat teachers and peers with respect for everyone has knowledge to share whether it is applied academically or in life.
4. Complete every assignment on time and to the best of my abilities because every assignment, project, and test is an extension of my knowledge, work ethic, and personal drive.
5. Never cheat, plagiarize, or participate in any other form of academic dishonesty.
6. Take pride in my school, my major, and my degree.

III. *As an engineer, I shall:*

1. Do my own work and be willing to ask for help when it is needed; everyone always needs help, clarification, and has questions.

2. Only do what I have been educated and trained in and not overstep the boundaries and limitations that come from having only one degree in one field.
3. Keep the public's safety and health in mind when completing any project.
4. Be willing to "whistleblow," despite the consequences, when it is necessary.
5. Constantly educate myself, keeping my education up-to-date and remaining involved and prominent in the academic community.
6. Be involved in organizations that pertain to my field and interests.
7. Work towards my license and once it is received, hold myself to its high standards and represent licensed engineers in a respectable and reputable manner.
8. Constantly challenge myself, in projects, my career, my education, and my involvement.

Example Code #4.

Code of Ethics

Student #4

Ethics are the cornerstone of the human culture. Each day we use our ethical compass in virtually everything we do ranging from workplace decisions to decisions that concern loved ones. Once ethics are learned over the course of their life. The events that have impacted ones life shape ones beliefs. These beliefs can be molded not only by events but also through religious beliefs or through lessons learned from family members. Each person has a different set of ethical beliefs and no two people have the same set of beliefs. This is what makes the world both challenging and dynamic. We all learn from each other and it's important to continue to learn which helps you continually refine your ethical beliefs. Below are a few rules that I try to follow in my everyday life.

General Rules

1. Don't Judge a Book by Its Cover. While first impressions are important, do not pass judgment on a person prematurely. Do not let looks or appearance or even ones sex or race effect how you feel towards another person.

2. Treat others as you wish to be treated. Treat everyone whom you encounter with the dignity and respect that you wish to have in return.

3. Be Honest. Be honest with all parties in which you come into contact. Recognize your mistakes and take accountability for those mistakes.

4. Do not abuse others. Do not intentionally or unintentionally abuse others for your benefit. Do not use those around you as steps on the ladder that you can step on and over to achieve what you want.

5. Always use your internal moral compass. When faced with a decision always use your internal beliefs and values and not let outside forces effect your decision making process.

Work Rules

1. Be prepared. Always understand what the task is at hand and know the steps you must take to overcome the task to which you are assigned.

2. Be Punctual. Always be on time for the start of your work shift, for meetings, or for any other work related activity in which you are participating.

3. Be Courteous. Be courteous to those who are around you. Keep in mind that they share the same workplace as you.

4. Continue to Gain Knowledge as an Employee. Throughout ones career continue to take steps to advance your knowledge of the subjects in which you deal with each day.

5. Respect your coworkers, leaders, and peers. Show respect for all coworkers, leaders and peers. Respect their opinions and their knowledge.

6. Respect your clients. Give all clients the respect that you want in return. Work hard to earn their respect and to deliver a quality product to them. Treat them like they are family.

Personal Rules

1. Know your limits. Know when its time to stop and take a break whither it by in your workplace, social settings, service organizations or just life in general.

2. Turn your mistakes into positives. Learn from your mistakes, learn what you did wrong and

take steps to become a stronger person as a result of your mistakes.

3. Avoid situations that challenge your ethical beliefs. Take steps to ensure that you are not put into situations where your ethical beliefs will be questioned or challenged.

4. Work to become a better person. Continue to learn about yourself and others. Learn from your mistakes and work to become a better person.

5. Follow your beliefs. Always follow what feels right. Do not give in to the pressures of peers or any other source of persistence that may alter your beliefs.

6. Ensure your safety. Do not put yourself in a position where you can physically be harmed, nor allow others to be put in positions in which they can be harmed.

Example Code #5.

Code of Ethics

Student #5

When discovering one's own Code of Ethics I believe you need to start at the beginning. My Codes and Cannons began early in my childhood with the introduction of the Boy Scouts and great parenting. I progressed through the ranks of Scouting eventually achieving the highest honor of Eagle. During that time the Scout law became my personnel Code of Ethics. My interpretation has changed over the years with different jobs, college and achieving a BSEE. The following shows changes to the Scout law that I have adopted while transiting from an Eagle Scout to an Engineer with 19 years experience within the engineering profession.

Trustworthy: An Engineer will always tell the truth. They only present information in an honest and professional manner. They inform their employers upfront of any possible conflict of interest within a situation. Engineers can depend on each other.

Loyal: An Engineer is true to their profession. They should never advise or provide services outside of their area of expertise. They should be loyal agents to their clients and employers.

Helpful: An Engineer is concerned about other people. After the reading and reviewing of various case studies my views on this one have changed. According to the first cannon: "Engineers will hold paramount the safety, health and welfare of the public."

Friendly: An Engineer should respect those with ideas and customs other than that of their own. They should respect all engineers and seek to understand others with different views.

Courteous: An Engineer is polite to everyone regardless of age or position. Their greatest compliment can only come from their peers.

Kind: An Engineer shall treat others as they want to be treated. They will always protect fellow engineers until proof can be determined.

Obedient: An Engineer follows the rules of their profession. They will obey all rules and laws. They will live their lives by using the Code of Ethics for Engineers, Canons, Rules of Practice and Professional Obligations. If at any time the engineer believes that any of these rules or laws have been broken, it is their obligation to report the wrongdoing.

Cheerful: An Engineer looks for the bright side of things. They should never talk about a colleague or peer in a negative manner. They should cheerfully accept any task that comes their way.

Thrifty: An Engineer should always strive to accomplish work for the best possible price. They should never accept money from more than one individual for the same work. They should never attempt to gain work from any organization that they were members of. They should carefully use time and property.

Brave: An Engineer can face danger by using the Code of Ethics and Canons as their guidelines. They will have the courage to stand for what they think is right even if others do not agree with them.

Clean: An Engineer shall keep a professional appearance. They should associate with those who believe in living by these same ideals.

Reverent: An Engineer is reverent toward their profession. They are faithful to each other. They will respect the beliefs of others.

As engineers we must follow a set of rules or guidelines to help keep the integrity within our profession. We can set the basic Code of Ethics for our profession but we must be willing and ready to adjust this Code as times and technology change within our careers. It is our responsibility to keep up with the changes with technology seminars and education for the betterment of our profession. As a professional society we must work hard to keep the respect of the communities around us.

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