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Engineering Ethics Today

by

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COURSE DESCRIPTION & INTRODUCTION

The purpose of this course is to satisfy the Continuing Education course requirements on ethics for license renewals. We recognize that all professional engineers have a duty to protect the health, safety, and welfare of the public. This is stated as the first canon of the National Society of Professional Engineers (NSPE) Code of Ethics (the Code). If you haven't previously memorized the entire Code, you can at least download a copy at their website at <https://www.nspe.org/resources/ethics/code-ethics>. This course will refer to the Code to discuss some of the areas in which ethics impacts a professional career. Note that you will need to use the Code for the course exam. Also, if you are a Federal employee, Executive Order 12674 and 5 CFR 2635 spell out the additional requirements for you to follow. Additionally, State and Local agencies may have their own requirements for their employees.

Why Ethics?

Why are you reading this ethics course today? Would you be reading this if it was not required to maintain your license and, consequently, your job? Probably not. Then, again, why ethics? At its very core, ethics boils down to trust. Our society depends on professional engineers to protect our families, our environment, and our quality of life by designing safe roads, buildings, airports, automobiles, airplanes, factories, labs, and more. If an engineer makes a mistake in a design, that mistake might just harm someone or potentially kill many. Therefore, the best reason for an Ethics refresher course is to keep us and the public out of harm's way.

But is any of this even necessary? Think back this year. Can you recall any ethical violations occurring this last year from coworkers, other professionals, public officials, or even news reporters? When you think about the public officials from local, state, and federal positions, how many of them issued public mandates but were later caught violating their own mandates? Did it bother you when hearing about their violations? Do you think they should be held accountable for those actions? Do you think those same officials would be willing to pardon you for doing the same thing that they did themselves? So, what should be the consequences for their actions? Should they be



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chastised, fined, fired, have their licenses revoked, or removed from their public office? And did you vote for them again in the next election?

Introduction

The Merriam-Webster Dictionary (www.merriam-webster.com/dictionary/ethics) defines ethics as “the discipline dealing with what is good and bad and with moral duty and obligation”. Sounds simple enough, right? Or is it?

Do you care? Would it bother you if a contractor said that a product you want costs \$1,500 and that it was a special deal that only he could get. You agree to the price and order the product. You go to Home Depot a couple of days later and find the same exact product for almost half the cost? Would you confront the contractor about the order and the price? Would you trust the contractor with any other orders? So, do you care about others' ethics only when it harms you?

How many ethics courses were you required to complete before you graduated? Was engineering ethics ever discussed by any of your professors? If you were not taught ethics in your required courses, how did you learn about ethics? Is ethics discussed during potential company hiring interviews? How do your newly hired staff learn about the importance of ethics in their work? How often did you discuss ethics with anyone this past year? Obviously, your non-professional support staff are not required to complete any Continuing Education courses each year, but should it be a company policy for them to have yearly Ethics training either with formal courses or conducted by in-house staff? If you are not talking about it or providing courses, how are you passing the concept of ethics to your coworkers, your new hires, or your other company staff? Does your company have an ethics code for employment? Do you know what it includes? Can you explain it to your new employees or to your new clients? Are you allowed to accept gifts from clients, contractors, or marketers? Can you describe the penalties or consequences found in your company's manual? If your company were to have a test covering their own ethics policy, would you pass the test?

What happens if no one in your company ever talks about ethics, reads about it, discusses it, argues about it, or fights about it... how long would it be before it just fades away? Why be bothered with ethics if no one cares? If the company has a reputation



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for not caring about ethics, should you stay with that company? Obviously, having a company that struggles with ethics listed on your resume isn't going to help your career.

This NSPE Code is more than a list of “do nots” or “you shall” requirements. Engineering is recognized as an advanced professional field because of the math, science, and technical papers involved. Consequently, it is a career that demands adherence to the highest values when it comes to honesty and integrity. Engineers are expected to be trusted “representatives” for their clients and their employers, but in doing so they must never fail in their ultimate duty to protect the public safety... not even once!

What about your clients, do they act ethically? Do ethics matter to the attorneys and regulators you work with or for? Have you observed examples of unethical conduct in *any* of them?

Now, considering your own actions, has anyone on your staff seen any possible appearances of unethical conduct in you? Have you rationalized any of your personal actions as being excusable since you saw others doing the same thing? Would they reach the same ethical conclusion as you have of yourself? Have you ever reported anyone for ethical violations you observed? As a professional engineer, you realize that you are required to report any ethics violations to the state board of engineers. (Section II.1.f.) All engineers need to do everything they can to uphold the honor and integrity of the engineering profession.

ETHICS FOR ENGINEERS

While the ethical requirements of prioritizing safety, telling the truth, avoiding conflicts of interest, etc. may seem simple enough, but is it really? In the real world, the implementation of these rules can quickly become complicated. Dealing with deadlines, budgets, staffing, and clients can often pressure engineers to make some hard choices that test their professional judgment. For example... Can you successfully complete the project with your staff, resources, schedules, and with the public safety and interests in mind? In these situations, the Code (Section I.1.) provides you with the needed clarity... the welfare of the public must be *the primary focus*. And, ultimately, it IS a choice that only **you** can make. No one can make the choice for you. They can try to



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pressure you or persuade you with their finances or other benefits or job, but only you can make the final choice since you would become the engineer of record.

ETHICAL SCENARIOS

Think about the last time you signed and sealed a set of plans or approved some construction specifications. At that point, you weren't just completing another item on your daily "To Do" list. You were once again putting your reputation, your license, your company, and the public's trust on the line. That's what makes engineering different from many other careers. The work doesn't just impact a company or a client. It impacts many people's lives. Did you even think about that aspect while you were signing the documents? Hopefully, you will think about it the next time you are signing and sealing some documents.

Scenario 1

The Code (Section I.1.) instructs us that public safety comes before costs, schedules, or other factors. Of course, in the real world, doing "the right thing" is not always simple or easy. What happens when you have a client telling you to skip some "minor" inspections to save time on his project because the contractor has previously completed a lot of projects just like this one? This situation forces you to make a choice, so stop and think. Do you follow their instructions, or do you follow your duty as a professional engineer? Once again, that is when the Code steps in and provides you with the response you need for yourself, the client, and the public's safety.

Scenario 2

Imagine your boss calling you into his office and pressing you to take on an RV campground project, but you have never worked on a campground design previously and you have not been camping since you were a teenager. And you don't even know what permits are required. Consequently, you know you are not professionally competent for this project. You may be flattered that your boss is giving you a chance to expand your capabilities, but you also know the Code makes it explicit that engineers may only undertake work for which they are qualified by education or experience. Therefore, the Code (Section II.2.a.) requires you to decline this work as the engineer of



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record. However, to get the knowledge you need, you could support an experienced engineer and gain the competency you need under his/her guidance.

Scenario 3

You've been asked to attend a public hearing about a proposed development by Kathy, a client that you have worked for previously. When Kathy is called upon to answer some technical questions from the development board, she asks you to address the questions on her behalf since you've worked on her projects. You are surprised by her request since you know nothing about the project and therefore you know nothing about any potential environmental impacts by the construction, impacts on the local traffic, types of products involved, or the development time schedules. Obviously, you don't want to lose Kathy as a client. Can you respond and, if so, how will you respond? In this situation, the Code (Section II.3.a.-c.) requires you to respond in an objective and truthful manner by stating that Kathy is a client of yours, but you have not been contracted for any work on this project. You can state that you don't know the specifics of this project, but you can provide some technical opinions referencing similar projects elsewhere that you have designed for her or others.

Scenario 4

You are interviewing for a large project that requires multiple disciplines to complete. You have previously worked with multiple companies that provide the services you need, so you pull together a team of engineers to make a convincing presentation of the team's capabilities. To really "sell" the project, you select the resumes of the best engineers of each company and present them to the selection board even though you know they will not actually be working on this proposed project. You feel great about winning the project until one of the companies on the team withdraws their offer. They state that you have misrepresented their involvement in the project, and they will be notifying the selection board and may report you to the state engineering board for ethics violations. Remember, the Code (Section II.5.a.) states you must not falsify or misrepresent the qualifications facts concerning employees, joint ventures, or past accomplishments, but you must do so ethically, properly, and honestly. Always remember that your reputation can be damaged much more quickly than it can ever be restored.

Scenario 5

Have you ever been asked to provide engineering services or designs for a side job on your own time away from the office? The Code (Section III.6.b-c.) actually allows this



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within certain conditions. The job and fees must be approved by your employer and must be ethical in all aspects. This means it must be completed outside of normal working hours and it must exclude the use of the company's equipment, supplies, and facilities. This includes the use of company software, printers, and plotters. If you don't personally have the equipment and software needed, the offer may not be profitable after you subtract the costs of the equipment, supplies, and software needed to complete the work.

Scenario 6

You just got fired or laid off for whatever reason. It happens for many reasons, some of which are totally outside of your control. What you cannot do, per the Code (Section III.7.), is to try getting hired by criticizing other engineers or engineering firms. You also can not embellish your own capabilities, designs, and project experience or by disclosing proprietary processes and trade secrets of previous employers and clients.

Scenario 7

According to the Code, when it comes to joint ventures, each party is due proper recognition for their contributions to the project. Without the contributions of each party, the project would not have been successful. The Code (Section III.9.) states that "Engineers shall give credit for engineering work to those to whom credit is due..." But this should not be limited to joint venture projects. As a junior engineer working with a team on a successful project, how often did you receive a good word from the project manager? If you are a project manager or a senior project manager, do you take the time to publicly recognize the efforts made by your staff? Or, do you think it is not necessary? If you have a junior engineer on your staff, you need to demonstrate ethics in your decisions and actions which includes recognizing the contributions of others. It not only boosts their confidence but helps them understand the concept of teamwork... especially if they discover and then point out a flaw in the project's design!

Scenario 8

A potential new client has requested an engineering proposal from you for her project. She has provided you with a map outlining the property but no boundary survey, topographic information, or environmental information. She says that she intends to develop the site as a large distribution center. You then do some limited research on the property, traffic impacts, and zoning. In your preliminary research you find the property seems to have a substantial area of wetlands, the access to the property is by a narrow two-laned road, and the only utility available nearby is an overhead electrical



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line. When checking the county zoning maps, you find the property is zoned as Rural Residential. Based on the Code (Section III.1.b.), you must advise the client that the project will likely fail because of zoning and the extensive development costs for utilities and traffic improvements. If she still wants to proceed, you may want to follow up your conversation in writing listing the potential issues that need to be resolved and that in your opinion the project will fail.

Scenario 9

Tom completed many new designs during the 7 years he worked for his previous employer. Now that he is working for a new employer in a nearby city, he pulls up a design that he completed while working for the previous employer since it is applicable for his current project. Since he actually did the original design, he believes he can continue to use it. Have you ever been in a similar situation for one of your previous designs? Is there a problem with this reasoning? According to the Code (Section III.9.d.), the designs referring to an employer's work are the employer's property.

ETHICS AND CONDUCT

If you have not read the state's definitions and requirements for ethics for each state in which are licensed, you should. The time you spend becoming familiar with the state's requirements where you are licensed may save you, your license, and your career. Many states engineering boards publicly publish the names and violations of engineers in their state that are convicted of ethics violations and then list their penalties, fines, required training, and probationary periods. This is not a list that you want to be on. As mentioned previously... which cannot be overstated... Your reputation can be damaged much more quickly than it can ever be restored.

Conflicts of Interest: A conflict of interest (Section II.4.a.) occurs when your own personal interests, or your personal connections, potentially interfere with the responsibilities or obligations required by your job. The laws and rules addressing conflicts of interest are very broad but basically boil down to the actions you take or decisions you make... even if you had the best of intentions. If you are doing something or receiving something that has the appearance of benefiting you, your family, your friends, or your associates, it is a conflict of interest.



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Public sector employees are additionally prohibited from being involved in situations in which their official actions may result in a direct or positive impact on the employee. Bottom line, do not get involved with anything in which you have a financial interest, including those of a partner or a family member. Also, simply being a member of certain organizations may be enough to prohibit your official involvement in the situation and will require you to properly report it.

Prohibited gifts: Per the Code (Section II.5.b.), any gift intended to influence you to act in favor of the one providing the gift is a prohibited gift. A gift does not need to be of high value to be prohibited. A gift may be forms of money, meals, merchandise, equipment, food, tickets, private trips or events, and more... Even if it seems innocent, a negative perception may still arise among your co-workers, competitors, or anyone who happens to observe the gift. Ask yourself as to why you are being offered a gift, and that may make it easier for you to decide whether to accept it or not.

The definition of a prohibited gift will also depend on your employer. If you are working in the private sector, your company may have a policy defining what is prohibited and what is an acceptable gift. However, if your employer is a governmental organization, their definition of a prohibited gift is generally anything that you receive that is not paid for by you at fair market value. Some agencies may be a little more lenient by allowing gifts up to a certain monetary value. Even then, you may be prohibited if the gift arrives right before a decision is announced for a contract award.

SUMMARY

This course is intended to be a refresher about a subject you already know, and it is to encourage you to practice good ethics every day. Always remember that ethics is not something that you turn on when you arrive at your office and turn off when you leave the office. It does not depend on the situation, time, location, or how you feel. Use every opportunity to promote good ethics to all of your staff.

Do you have a copy of your state's Code of Ethics posted in your office? Perhaps you have it posted in your conference rooms? As discussed in this refresher course, ethics is applicable to everyone in your office... including your clients.



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Additionally, as discussed earlier, does your office have their own company policy on ethics stating what is expected and... what the consequences will be if violated? If so, is it also prominently posted for all employees to see? Does your office have in-office training/discussions on ethics? Did you answer "Yes" to these three questions? If not, what should you do about it?

Engineers probably face ethical challenges every day. It is an ongoing struggle to keep making the hard choices on every project and with every client on every day. However, we must fight that battle and win every time even we are tempted to do otherwise on a project.

The question for you to answer every day... is not "What reputation do you want"? Obviously, everyone 'wants' a good reputation. The real question is "What reputation will you have?" Ensure you make it a good one!

Remember: Just do what is right and ethical for everyone... every time, and your reputation will be a good one.