STUDENT CHEATING, DISCIPLINE, AND ETHICS

Cheating is a fact of life, whether in universities or in society in general. But you can drastically reduce the incidence of cheating in your classes by taking simple precautions. This chapter should help you prevent cheating. Related issues about ethics and student discipline are also considered.

12.1. SUMMARY AND OBJECTIVES

After reading this chapter, you should be able to:
- Define methods to increase the ethical behavior of your students.
- Discuss the appropriate methods to handle cheating at your university.
- Develop methods to handle other disciplinary issues.
- Introduce ethics into your engineering course in short segments at the appropriate time.

12.2. CHEATING

Most engineering professors agree with Gregg (1989) that cheating “must not be tolerated in any form.” Despite this, many graduates admit that they have cheated sometime during their college career. In one older study 56% of a graduating class of engineering students admitted to having cheated in college (Todd-Mancillas and Sisson, 1986), while in another study 82% of engineering students engaged in some type of cheating (McCabe and Trevino, 1997). More recently, Carpenter et al. (2006) found that 96.3% of a sample of 643 undergraduate engineering and pre-engineering students had performed at least one act that could be considered cheating. However, many students did not believe that all of these acts were cheating. Apparently, the use of technology (e.g., as a web-based quiz) or out-of-class exams changes the students’ definitions of cheating. Harding et al. (2012) asked 388 engineering students at three schools if they had
cheated on an in-class exam during the previous term. Test cheating was self-reported by 32.2% of the students. It is much better to prevent cheating than to have to deal with it after the fact.

What leads to increased cheating? In other words, if we wanted to design a course to increase cheating what elements would we build into the course? Reviewing the extensive literature on cheating that ranged from the ancient Greek Olympics to modern courses, Lang (2013) came up with five elements that increase cheating. Stated positively, the five elements that decrease cheating are:

1. A strong emphasis on learning. Instead of emphasizing doing well on tests, emphasize learning (see Section 15.6.3).
2. Reduce the stakes of assessments. For example, give many tests so that everything does not depend on the performance on one test.
3. Rely on intrinsic motivation. Extrinsic motivators often introduce competition, which can lead to cheating. Intrinsic motivators do not lead to cheating. If you can figure out how to make students “see the course material as intrinsically fascinating, useful, or beautiful” (Lang, 2013, p. 152) they will be intrinsically motivated. Since most engineering material is useful, convincing students that it is useful should not be extremely difficult. Using intrinsic motivation is the most important element.
4. Success depends on student effort. Increase the student’s self-efficacy by arranging that students who learn more will have better outcomes. For example, students should have enough time on tests that they can logically determine a solution path.
5. Students’ peers disapprove of cheating.

The first four elements are under the control of instructors when they design their courses. Perhaps surprisingly, if instructors increase these four elements student learning also increases. Mastery learning (Section 7.7) automatically satisfies elements 1, 2 and 4, which helps to explain why it works. Projects (Sections 9.2.4 and 11.5), competitions (Section 9.2.8), and service learning (Section 7.10) often tap into intrinsic motivation. The fifth element depends on the environment of the institution and requires sustained effort from the administration and faculty to change.

Another element that Lang (2013) discusses, but does not list as key, is:

6. Fairly high chance of being caught. If few of the top five elements are in play, instructors can still reduce cheating with due diligence. However, unlike the first five, this element probably does not increase learning.

### 12.2.1. Prevention of Cheating

The best method for reducing large scale cheating is to create an atmosphere that is not conducive to cheating (Eble, 1988; Kibler et al., 1988; Lang, 2013). Probably the best way to do this is to have a well-functioning, student-run honor code. There is cheating at schools with honor codes, but less than at schools without honor codes (McCabe et al., 1999).

When good rapport exists between students and professor and among students themselves, cheating is drastically reduced. It is much easier to cheat when a professor is cold and aloof. A student who feels like a number and knows that the professor does not know her or his name finds it easier to cheat than a student who is known to the professor by name. Students cheat significantly less in a class with shared objectives, with straight scale grading
that is not competitive, where students have some control over how they are assessed, and where there is an obvious excitement in learning. Any class where students feel that the professor is a partner in learning will have a low incidence of cheating.

Professors who develop a reputation for writing fair tests and grading fairly will have less cheating on their tests than professors with a reputation of writing unfair tests or of being "super hard" graders. Students must be challenged, not overwhelmed.

Reducing anxiety on tests also decreases cheating and increases learning (Kibler et al., 1988; Lang, 2013). The pressure of any one test can be reduced by giving numerous quizzes or tests but if not enough time is available for the test may increase surface learning (students just learn what they think they need for the test instead of trying to understand, which is deep learning, see Section 15.3.1). Equal access to test files reduces the urge to cheat on the part of those without access. Access to the professor and TAs for help and a help session immediately before the test make the course seem fairer and help reduce pressure. Open book exams or tests with equation handouts or key relations charts help reduce pressure and eliminate use of illegal cheat sheets.

Before a test is administered, some commonsense security measures can reduce the temptation to cheat. Make up a new test shortly before the test date. Have a secretary, not a work-study student, do any typing and make the copies. Any waste copies should not be thrown away (students have been known to search waste baskets) but should be kept with the other tests and discarded after the test. Any computer files not secured by a password should be deleted or the disk should be locked up. Test copies should be locked up, taken home, or craftily hidden. Even a normally honest student may be sorely tempted if a copy of the test is sitting out in plain view on a desk. Make up extra copies of the test, but number the copies so that you will know exactly how many have been distributed.

Since cheating usually occurs during the test, discuss cheating the class period before the first test. Since students often define cheating differently than faculty, explicitly define acts that you consider are cheating. A little bit of humor can help get the point across and make the discussion less threatening. Tests with long-answer questions with many calculations are the most difficult to cheat on. Multiple-choice problems are the easiest to cheat on, and if other precautions are not taken may invite cheating. Short-answer problems are intermediate. On multiple-choice tests the use of alternative test forms that have either the questions or the answers in different order will reduce cheating. Alternate test forms with different values in calculations also reduce cheating.

The most common way to prevent cheating is to make cheating difficult so that it is likely that cheaters will be caught. Proctoring exams is absolutely necessary. In large classes both you and the TAs should proctor the test. Proctoring has a major deterrent effect on cheating (Kibler et al., 1988). The proctoring can be done in such a way that it is clear that the proctors are alert so that they can help students with questions. Stationing a TA at the back of the room is an effective deterrent in large lecture halls since students cannot easily keep track of the proctor’s location.

If at all possible, have the students sit in alternate seats since this drastically reduces cheating of the wandering eyes variety. If a large enough room is not available, consider using two rooms. Assign students to each room in advance and have each room proctored. Or use alternative test forms that have either the questions or the answers in different order, or use different values in calculations.
Before the exam starts have students place books underneath their desks unless the test is open book. Since many calculators and cellphones can store significant amounts of alphanumeric data, they have become possible cheat sheets. The temptation to use them in this way can be reduced if you stroll about the room while looking for students who need help. Many professors ban the use of cell phones during tests. Students should not be allowed to share calculators unless a TA clears the calculator first. The significance of cheat sheets is eliminated if every student is allowed to bring one in or if the test is open book.

Since the purpose is prevention rather than proof of cheating, take action as soon as something suspicious happens. Standing near the student (while waiting to answer the questions of other students) may be a sufficient deterrent. Asking the student if he or she has a question is a subtle way of letting the student know that you are watching. If the situation persists, ask the student to move to a less crowded spot. If the student prefers to stay put, suggest that you prefer that he or she move. Some professors announce to the class that students should not look around the room. This can be effective, particularly if the professor looks at the suspicious student, but it is a bit distracting for the class.

In very large classes where the professor does not know each student by name and may not even recognize some faces, it is fairly common to use picture IDs to prevent “ringers” from taking the examination for someone else. The IDs can be placed on the corner of the desk or they can be shown to the TA as the student turns in the test. Of course, the ID may be false.

The chaos of test turn-in time also invites cheating (Felder, 1985). Students see someone else’s solution or the professor’s solution and then quickly change their answers. This can be prevented by making everyone stop writing at a particular time. The professor’s solution can be guarded until after all tests have been turned in. The professor can have the TAs collect the test while watching for suspicious activity.

As soon as the tests have been collected, log them in. In this way you know immediately who did not take the test. Tests need to be kept secure after the exam is over. Students have been known to steal a large number of tests so that the exam cannot be graded. Both the professor and the TAs need to be careful not to lose any tests. Losing a student’s test creates major difficulties.

Be sure that the graders make a mark on every page of the test perhaps including the backs of pages so that students cannot claim that the grader did not see a page. It is best to use bound examination books so that pages cannot be inserted after the test has been returned. If a stapled test is used, carefully staple all the pages together when the test is returned. It is extremely difficult to add a page without making an extra staple hole in the other pages.

Any students who are suspected of being dishonest should receive extra care in grading. You can spend a little extra time going through their tests in detail to be sure that the grading is correct. Make a copy of the suspect’s test before it is returned. Who is a suspect? Any student who has been caught cheating previously, who has been suspected of cheating, or who has received significant points by having a previous test regraded. It is best to handle these cases quietly without the help of the TAs since the student may well be innocent.

Procedures for homework, projects, and take-home tests are similar, but it may be harder to catch cheaters. If a take-home assignment is to be done independently, this requirement needs to be stated in writing on the top of the assignment. Despite this, collaboration on take-home assignments, even among graduate students, is very high (Todd-Mancillas and Sisson,
Student Cheating, Discipline, and Ethics

1986). The easiest way to decrease cheating on take-home assignments is to make them a small percentage of the course grade and then encourage students to collaborate (Felder, 1985).

Plagiarism is the most common form of cheating (Newstead, 1998). The rules for plagiarism of papers and of computer code need to be clearly spelled out (Walworth, 1989). Since different cultures define the act of sharing answers with a friend in different ways, professors need to share their definitions and rationale with the class. Many students simply do not know the rules about plagiarism, so this discussion is particularly important. To make the discussion positive, present it in a positive form by including it in a larger discussion on the importance of engineering ethics and the proper method of citing sources (see Section 12.4). Since copy-and-paste is so easy, lazy students may be blatant in their plagiarism. Relatively sophisticated but dishonest students may try to hide their plagiarism by changing the context of copied material, listing false references, and including a bibliography but no citations in the paper (Ryan, 1998). Plagiarism can be detected automatically in papers with commercial software such as Turnitin and iThenticate and in code (Joy et al., 2011). McCuen (2008) explores the thought process of students who commit plagiarism. Students are less likely to plagiarize if they know the paper will be checked. A student who believes that he or she will receive more credit by properly citing sources is less likely to plagiarize.

Graduate students have been known to plagiarize, particularly in their literature reviews. We tell PhD students before they write their theses that about the only action that will prevent them from graduating is to plagiarize. We also mention that the university has a license for plagiarism checking software. Since they have worked long and hard to get to the point they are at, they do not risk failing because they were too lazy to rewrite some passages from the literature.

12.2.2. The Cure for Cheating

Once cheating has been detected, resolving the situation can be very painful and time consuming. Cheating must be fully documented. If possible, have someone witness your proof. If there is reasonable doubt that cheating has occurred, the best course is to put the student on your suspicious list and be more vigilant the next time.

If the proof of cheating is clear, then obtain a copy of your university’s regulations and read them very carefully. Courts have upheld the principle that some form of due process must be followed in academic discipline cases [see Kibler et al. (1988) for citations of the court cases]. Follow your university’s regulations. Most universities have developed regulations that provide students with appropriate due process. If you make allegations of cheating in good faith and follow your university’s regulations, then you will be well protected from personal liability even if the student is found not guilty (Kibler et al., 1988). However, you will be liable if the student is found not guilty and you impose penalties anyway.

Some universities allow the professor to discuss the case with the student, and if the student confesses, the professor can decide the penalty. This can range from a zero on the test to a lower grade in the course. Kibler et al. (1988) suggest that this informal procedure without reporting the case is somewhat dangerous. If the student later recants and claims that he or she was coerced into confessing, the professor may be liable even though the student signed a confession. It is safer to go through the formal university channels. The university committee also has
access to records that may show that the student chronically cheats, which will result in a more severe penalty. Lowering the student’s grade without discussing the allegations with the student is unwise since due process has clearly been denied the student, and the professor may be liable.

Stevens (1996) agrees that professors should first check their university’s rules, but he recommends professors use an informal procedure. Inform the student orally of the charges and the potential penalties. There must be an appeal procedure, such as reporting the alleged offense to the Dean of Student’s office for a formal hearing. Explain the appeal procedure to the student. If potential penalties are mild (e.g., a zero on the test), Stevens suggests holding a private investigative hearing. The hearing can be done immediately and does not have to be drawn out. Listen to the student, decide if the student is guilty, and if guilty select a penalty. Since the professor has acted as prosecutor, judge and jury, the reason for the appeal procedure is clear. If the student requests it, use the university’s formal procedure. Students who are guilty may well accept your penalty instead of risking a formal hearing.

We repeat: It is much better to prevent cheating than try to deal with it once it has occurred.

12.3. CLASSROOM INCIVILITY AND OTHER DISCIPLINE PROBLEMS

Although cheating is the most prevalent discipline problem, professors have to deal with classroom incivility and other discipline problems. Once again, prevention is the best policy. Professors who develop rapport with students, are fair and accessible, are excited about the material they are teaching, and try to function as an ally to the student in learning the material have few cases of classroom incivility or discipline problems. However, one must know where to draw the line. Students are similar to children in that they test professors. Just as a parent must know when to stop this testing, professors must be able to tell students that their requests are unreasonable. This can be achieved with friendliness but at a certain professional distance (see Chapter 17).

Classroom incivilities including talking, reading newspapers, texting, arriving late or leaving early, surfing the web, talking, showing disrespect for others, and sleeping all disturb other students. In addition, we have a rule that students are not allowed to wear headphones in class because a student wearing headphones cannot, even by accident, pick up anything of value from the lecture. State both the rules and the reasons for the rules (protecting the learning environment for all students) during the first class period. Offenders can be asked politely to stop. If the offense continues, the student can be called in for a private discussion focused on how his or her behavior affects the learning environment in the class.

Peer pressure can be a strong deterrent for anti-social behavior. Listing the results of a student survey of uncivil behaviors (Bjorklund and Rehling, 2010) in your syllabus may decrease their frequency. The top dozen uncivil behaviors, with scores above 3 on a 5-point Likert scale were:

1. Talking after being asked to stop
2. Under influence of alcohol or drugs
3. Ringing cell phone
4. Talking loudly with others
5. Nonverbal disrespect for others
6. Swearing
7. Sleeping
8. Disparaging remarks
9. Arriving late or leaving early
10. Text messaging
11. Packing up books early
12. Doing non-class activities on computer or smart phone.

If there are significant problems during the term, another approach is to do a survey of the class and ask which behaviors they find the most disturbing or uncivil. Then if you ask students to stop talking, you are enforcing the class’ rule, not yours.

Late arrivals are mildly disruptive. And a latecomer who then asks questions about material that has already been covered can be quite disruptive. Some professors lock the door when the bell sounds. This approach seems extreme. Talk to a chronically late student but do so in a nonthreatening manner (see Chapter 10). Perhaps there is a good reason for the tardiness, and some sort of special arrangement may be appropriate, such as transferring the student to another section. At the least you can request that the latecomer save questions about material that has already been covered until after class.

Hostile students are another problem. Hostility is most prevalent following a test, but some students start the semester hostile. Hostility following a test can usually be deflected by having a fair regrading procedure and by asking the student to talk to you after class. Since this type of hostility usually decays rapidly, a good strategy is to give the student time to cool off and then listen to her or him. A chronically hostile student is a different matter. Look at the student’s file and talk to the undergraduate program advisor and to professors who have had him or her previously. This information may give a hint of how to proceed. If there is no hint, you can call the student in for a chat. Try to be non-defensive, express concern as to the reasons for the behavior, stress the need for professionalism and the consequences for hostile behavior at work, and listen to her or him. Don’t expect miracles but see if an accommodation can be worked out.

Students with excessive absences cause problems since they skew the curve downward on tests, are usually late or don’t turn in homework, and often complain about the course. In some courses, such as laboratories and seminars, it is appropriate to require attendance and reduce the student’s grade accordingly for absences. Many students, and some professors, think that attendance in lecture courses should be optional and what the student learns should determine his or her grade. Keep track of attendance and point out the excellent correlation between attendance and learning. Refusing to grade on a curve prevents excessively absent students from skewing the grading. If you want to grade on a curve, one solution is to plot the scores of students who have attended at least some minimum number of classes and use this curve to set the course grades. Then on the basis of this curve, students with excessive absences receive whatever grade they have earned. If you do this, be sure to explain the grading procedure clearly in advance.

Students do procrastinate and often turn assignments in late. Accepting late assignments at full credit does not seem fair to students who have done the work on time, and it rewards students turning assignments in late for bad behavior. On the other hand, following a policy of never accepting late assignments seems overly rigid. We tell students that we follow the same policy as companies: *late work is accepted grudgingly*. Thus, there is a penalty for turning in assignments late. Students sometimes miss tests, with excuses ranging from oversleeping
(probably true), to being sick (maybe true), to the death of a grandparent (possible). The easiest policy for dealing with absences is to automatically discard the lowest test score that the student receives during the semester. A test missed for any reason becomes a zero and is discarded. A student who protests can be offered an opportunity to take the test for practice. A second policy that some professors use is to allow makeups only for illness with a signed form from a medical doctor or an obituary for death of a family member. A third possible policy is to write a makeup test for each test. A procedure we have used is to allow students who have proof of being ill to take a makeup. For everyone else (e.g., plant trips or oversleeping) we write a single, cumulative makeup taken at the end of the semester. When given the choice of taking a cumulative exam or rearranging a plant trip, students often find the company is willing to accommodate their schedule.

Students argue about grades after each test and at the end of the semester. A formal regrade policy (see Section 11.3.3) is useful. For arguments at the end of the semester, students should be shown the courtesy of being listened to. Occasionally we have found that a mistake was made and the grade needs to be changed. At some universities a discussion with the professor is the first step in a formal grade appeal procedure. Changing student grades unless a mistake has been made in recording the grade or in adding points will drastically increase the number of regrade requests the professor gets in the future.

On rare occasions one hears stories of students trying to buy grades with money, gifts, or sexual favors: “Professor, I’d do anything for a B in this class.” Since the offers are usually not explicit, the best response is to act as if nothing unethical was intended: “Here’s a study schedule with ten hours a week on this course including an hour a week of tutoring with the TA. If you follow this you will be sure to improve your current grade.”

### 12.4. TEACHING ETHICS

Teaching students to become ethical engineers is important. This subject is particularly appropriate for this chapter because it is improbable that students who cheat their way through school will suddenly become ethical engineers upon graduation. To some extent cheating does predict unethical behavior in the workplace (Carpenter et al., 2004). Although practicing engineers rarely turn to the codes of ethics, the codes of ethics developed by different engineering societies help to focus a discussion on ethics (Colby and Sullivan, 2008). After trying different codes, in classes with students from different engineering disciplines we have settled on the very short code developed by the Engineers’ Council for Professional Development (ECPD) which became ABET (see Section 4.7) shown in Table 12-1. This code has been incorporated into most of the longer codes of the different engineering societies. In classes where the students are all in the same engineering discipline we use the code from the engineering society for that discipline (e.g., AIChE, ASCE, IEEE). Sheppard et al. (2009, p. 141) note that all of the codes are similar in articulating “the overriding importance of competence, responsibility, accountability, and fairness.” They note later (p. 143) that “quality is, in essence, an ethical dimension of engineering.”

If desired, after the introduction of one of the codes of ethics, it is relatively easy to segue into cheating, which clearly does not result in quality or fairness. An advantage of this approach is that it clearly couples cheating with unethical behavior. Since cheating is not the main focus of the discussion, the students are less likely to feel accused and become defensive.
Ethics must be instilled in students (Walworth, 1989)—most effectively by including the subject throughout the curriculum instead of adding an ethics course or lecture at the very end of the student’s career. Ethics can be introduced in a “just-in-time” format in every engineering class. When the ethical issue comes up, discuss the ethics involved. It is helpful to model and then require students to either use an ethical decision-making process similar to the one shown in Table 12-2 or adapt an engineering design process to ethical problems (Whitbeck, 1995). The latter approach has the advantage of emphasizing that ethical situations are often open-ended with a wide range of possible solutions.

Table 12-1. ECPD Code of Ethics (© 1977 American Association of Engineering Societies. Used with Permission)

<table>
<thead>
<tr>
<th>Fundamental Principles</th>
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<tr>
<td>Engineers uphold and advance the integrity, honor, and dignity of the engineering profession by:</td>
</tr>
<tr>
<td>I. using their knowledge and skill for the enhancement of human welfare;</td>
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<tr>
<td>II. being honest and impartial and serving with fidelity the public, their employers, and clients;</td>
</tr>
<tr>
<td>III. striving to increase the competence and prestige of the engineering profession;</td>
</tr>
<tr>
<td>and</td>
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<td>IV. supporting the professional and technical societies of their disciplines.</td>
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<table>
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<tr>
<th>Fundamental Canons</th>
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<tbody>
<tr>
<td>1. Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties.</td>
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<tr>
<td>2. Engineers shall perform services only in areas of their competence.</td>
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<td>3. Engineers shall issue public statements only in an objective and truthful manner.</td>
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<tr>
<td>4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.</td>
</tr>
<tr>
<td>5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.</td>
</tr>
<tr>
<td>6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the profession.</td>
</tr>
<tr>
<td>7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.</td>
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A variety of methods can be used to instill ethical behavior. A few of these methods are:

1. Model ethical behavior at all times. The ethics of being an engineering professor are discussed in Chapter 17.

2. Before the first test in every course discuss the need for ethical behavior in engineers. Note that you expect students to practice ethical behavior. Then discuss the rules for honesty in taking a test.

3. Engineering professional ethics can be taught in stand-alone 1 to 3 credit courses, as part of required technical courses (Harris et al., 1996), or in required professional seminars.
Of course, it would be preferable to include ethics throughout the curriculum. Our experience is in professional seminars. We believe that professional seminars should have multiple sessions on ethics. The appropriate code of ethics should be distributed to all students and then discussed. The ECPD code (Table 12-1), is short and is part of the codes of many engineering societies. The first fundamental canon, “Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties,” is included in most other engineering codes. We discuss what this means with specific examples. Unfortunately, it is easy for students to read any code without thinking about its ramifications. As a take-home quiz we pass out ten of the short ethical scenarios from Mathews et al. (2006) that asks students to first choose an ethical option from the choices presented. The scenarios are somewhat vague since they do not have much information, and most of the scenarios have multiple correct answers. Both of these characteristics are common for real ethical dilemmas (Jonassen and Cho, 2011). The second, and more difficult, part of the quiz requires the students to identify a portion of the code that justifies their answer. The first two questions are done in small groups in class followed by class discussion. The entire quiz is discussed in the next class after it has been handed in. For some of the juniors this is the first time they have seen ill-defined problems with multiple correct answers in an engineering course.

4. In discussions of ethics the professor can usefully play the role of devil’s advocate. Florman (1987) presents an interesting hypothesis that laws have taken the place of self-policing ethical codes and thus most of the codes are obsolete. He recommends a common-sense approach to ethics. His first postulate is:

Don’t break the law.

Since most engineering failures are due to human error or sloppiness, his second postulate is:

Be conscientious, that is, careful, hardworking, dedicated, and innovative.

Florman notes that whistle blowing is usually unnecessary. He suggests trying to influence events without becoming excessively disruptive, of working within the system.

5. Case studies (see Section 9.2.4) with class discussion or a class debate are excellent for involving students in a discussion of ethics (Colby and Sullivan, 2008). Case studies are appropriate as part of a regular class, as part of a seminar class, or in a class devoted to ethics. For example, in a senior design class the ethics of environmental problems can lead to a lively
hour of discussion. Or the students can discuss or debate whether an engineer working on offensive weapons in the defense industry is satisfying fundamental canon 1. The explosion of the space shuttle *Challenger* serves as an interesting case study for any engineer (Florman, 1987), but to current students the *Challenger* disaster is ancient history. The National Academy of Engineering Online Ethics Center http://onlineethics.org/ has a number of more up-to-date cases and scenarios plus historical cases. Methods to analyze cases are discussed in standard engineering ethics textbooks (e.g., Fleddermann, 2011; Harris et al., 2014).

6. Three videos produced by the National Institute for Engineering Ethics can be useful, but in our experience students find the two oldest videos, *Gilbane Gold* (1989) and *Incident at Moralles* (2003), to be dated. The third video, *Henry’s Daughters* (2010), is more recent. The videos can be obtained from the Murdough Center for Engineering Professionalism at Texas Tech University http://www.depts.ttu.edu/murdoughcenter/.

7. Bringing back recent alumni who have faced ethics situations is more realistic to students because they can more easily imagine confronting these problems themselves.

8. In the senior design course we discuss the ethics of job hunting, interviews, and plant trips. We emphasize that cheating on an expense account will get the engineer fired, and that reneging on a job offer is not the appropriate way to start an engineering career.

9. Passino (1998) has interesting ideas for large classes on ethics. For example, he uses an “attendance question” (that is, a one-minute quiz) at the end of each class to obtain the attendance list and comments that start the next week’s class. Passino knows that some students will start sneaking in late once they realize that the attendance questions are always at the end of class. He ties this behavior to professional behavior on the job.

10. The typical ethics discussions consider only individual ethics, which are important but do not change systemic problems in engineering education. After individual ethics, try being bold and covering engineering for social justice (Baillie et al., 2012; Lucena, 2013; Nieusma and Riley, 2010; Riley, 2008). One approach that is palatable to most students is to start with a case study of development work by a non-governmental organization (NGO) such as Engineers without Borders (EWB) [the Online Ethics Center at the National Academy of Engineering has a case study on EWB]. The next step would be to transition to service learning (see Section 7.10) and have students actually work with EWB or another NGO.

Ethics is a dry subject only if presented as a dry subject. A little creativity can make the ethics portion of a class lively and interesting. The best essays we have read on the critical importance of embedding ethics and professionalism into engineering education are chapters 16 and 17 of Sheppard et al. (2009). We recommend all engineering professors read these 19 pages.

**12.5. CHAPTER COMMENTS**

In a class on teaching, the material in this chapter can be fun to teach. Every student and professor knows stories about the zany things students have done to cheat or to escape doing work. A little humor can make this interesting and counter the seriousness of the topic. As for cheating, we cannot emphasize too much that prevention is better than a cure. One additional method, which is outside the scope of this chapter, is to develop a student-run honor code. Schools with well-functioning honor codes have a significantly lower incidence of cheating.
HOMEWORK

1. Obtain a copy of the regulations for handling cheating at your university. Compare the policies of your university to the more general discussion in this chapter.

2. From newspapers or professional publications find a current news item that involves ethical issues. Develop a five-minute presentation to include this issue in an engineering class. Develop a plan for student discussion based on Table 12-1 or other engineering code of ethics.

3. List additional cheating methods and how to handle them.

4. Select a short case or scenario from http://onlineethics.org/ and apply the ethical decision-making process to it.

REFERENCES


