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## STUDENT CHEATING, DISCIPLINE, AND ETHICS

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In universities, as in society in general, cheating is a fact of life, but as a new instructor you can drastically reduce the incidence of cheating in your classes by taking simple precautions. The aim of this chapter is to help you prevent incidents of cheating. Related issues about ethics and student discipline are also considered.

### 12.1. 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 study 56 percent of a graduating class of engineering students admitted to having cheated (Todd-Mancillas and Sisson, 1986). It is much better to prevent cheating than to have to deal with it after the fact.

#### 12.1.1. Prevention of Cheating

The best method for reducing large scale cheating is to create an atmosphere which is not conducive to cheating (Eble, 1988; Kibler et al., 1988). 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, 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 of writing fair tests and of grading fairly will have less cheating on their tests than professors with a reputation of writing unfair tests or of being “superhard” graders. Students must be challenged, not overwhelmed.

It is important to discuss the rules of cheating and plagiarism with students (Evet, 1980; Walworth, 1989). Just as 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 (see Section 12.3). The appropriate time for this discussion is immediately before the first test or the first assignment which is to be done independently. A little bit of humor can help get the point across and make the discussion less threatening for the students.

Reducing anxiety on tests also decreases cheating (Kibler et al., 1988). The pressure of any one test can be reduced by giving numerous quizzes or tests. Equal access to test files reduces the urge to cheat on the part of those without access. Access to the professor or to 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 to reduce pressure and eliminate the use of illegal cheat sheets.

Before a test is administered, some commonsense security measures can reduce the temptation to cheat. You may want to adopt some of the following suggestions to help prevent both casual cheating and the deliberate stealing of tests. 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 which are not secured by a password should be cleared or the disk should be locked up. Test copies should be locked up, taken home, or craftily hidden. Even a normally honest student will 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.

The most common forms of cheating occur during the administration of a test. Long-answer tests 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 in cheatability.

In large classes both the professor 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 (Evet, 1980). If a large enough room is not available, consider using two rooms simultaneously. Assign students to each room in advance and have

each room proctored. Another possibility is to use alternative test forms which have either the questions or the answers in different order, or to 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 can now store significant amounts of alphanumeric data, the calculator has become a possible cheat sheet. The temptation to use it in this way can be reduced if you stroll about the room while looking for students who need help. 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 not 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.

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 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. Making any of these assignments a large part of the grade, particularly in

a class where there is no rapport between the professor and the students, is asking for trouble. If a take-home assignment is to be done independently, this needs to be discussed in class and it needs to be stated in writing on the top of the assignment. Despite this, collaboration on take-home assignments is very high (Todd-Mancillas and Sisson, 1986). Even graduate students collaborate on take-home tests. The rules for plagiarism of papers need to be clearly spelled out. A student who believes that he or she will receive more credit by properly citing sources is less likely to plagiarize. 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).

### 12.1.2. 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 citation 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, then 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 which may show that the student is a chronic cheater, which will result in a more severe penalty. Some professors lower the student's grade without discussing the allegations with the student. This is unwise since due process has clearly been denied the student and the professor may be liable. We repeat, it is much better to prevent cheating than try to deal with it once it has occurred.

## 12.2. OTHER DISCIPLINE PROBLEMS

Although cheating is the most prevalent discipline problem, there are other discipline problems which the professor must learn to deal with. Once again, prevention is the best policy.

Some professors have fewer problems with students than do others. These are the 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. In addition, these professors know where to draw the line. Students are similar to children in that they test the professor. Just as a parent must know when to stop this testing, the professor must be able to tell students that their request is unreasonable. This can be achieved if the professor is friendly but keeps a certain professional distance (see Chapter 17).

Discipline problems can occur in class. They include talking, reading newspapers, and wearing headphones. State both the rules and the reasons for the rules during the first class period. Talking and newspaper reading disturb other students, and a student wearing headphones cannot, even by accident, pick up anything of value from the lecture. Offenders can be asked politely to stop. If the activity continues, the offender can be called on to contribute to the class. If the offense still continues, the student can be called in for a private discussion.

Late arrivals are mildly disruptive. And a latecomer who then asks questions about material which has already been covered can be quite disruptive. Some professors lock the door when the bell sounds. This approach seems extreme. Talk to a student who is chronically late 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 which 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 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 nondefensive and listen to her or him. Don't expect miracles but see if an accommodation can be worked out for the semester.

Students with excessive absences cause problems since they skew the curve downward on tests, are usually late with 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 assignments are often turned 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 accept overdue assignments but penalize students a given percentage for each day the assignment is late.

Students sometimes miss tests, with excuses ranging from oversleeping (probably true) to being sick (maybe true) to the death of a grandmother (doubtful). The easiest policy for dealing with absences is to automatically discard the lowest test score (preferably based on the *T* 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. A third possible policy is to write a makeup test. The procedure to use is up to you.

Students argue about grades after each test and at the end of the semester. A formal regrade policy (see Section 11.2.3) is useful. For arguments at the end of the semester, students should be shown the courtesy of being listened to. At some universities this is also 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 complaints 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 plus an hour a week of tutoring with the TA. If you follow this you will be sure to improve your current grade.”

A different type of student discipline problem involves the graduate student who does not appear to be working or performing any research. Unfortunately, it can be difficult to tell if the student is working or performing. Help the student set realistic goals. Sometimes graduate students stop working because they do not have a job lined up after graduation. If this is the case, you may be able to help with a postdoctoral position. If the student is supported by research funds, no work—no pay is a realistic policy. Often the student can continue to be paid if he or she continues working on research and just delays turning in the thesis. In extreme cases stopping payment is appropriate.

### 12.3. TEACHING ETHICS

Teaching students to become ethical engineers is important. This subject is particularly appropriate for this chapter because part of becoming an ethical engineer consists of behaving ethically as a student. It is improbable that students who cheat their way through school will suddenly become ethical engineers upon graduation. A general discussion on ethics is a good way to start a discussion on cheating since the students are less likely to feel accused.

Professors cannot assume that students are automatically ethical. 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.

**TABLE 12-1** CODE OF ETHICS

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**Fundamental Principles**

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Engineers shall 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;
2. being honest and impartial and serving with fidelity the public, their employers, and clients; and
3. striving to increase the competence and prestige of the engineering profession.
4. supporting the professional and technical societies of their disciplines.

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**Fundamental Canons**

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1. Engineers shall hold paramount the safety, health, and welfare of the public 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 reputations on the merits of their services.
6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.
7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

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Ethics can be introduced in a “just-in-time” format in every engineering class. When the ethical issue comes up, discuss the ethics involved.

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 start practicing that ethical behavior right away. Then discuss the rules for honesty in taking a test.

**3** Seminar classes on professionalism should have at least one session on ethics. The appropriate code of ethics should be distributed to all students and then discussed. A simple code is the one shown in Table 12-1 which is the ABET code of ethics and part of the codes of many engineering societies. The new IEEE code is discussed by Singleton (1991). Unfortunately, it is easy for students to read any code without thinking about its ramifications.

**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-policed ethical codes and thus most of the codes are obsolete. He recommends a commonsense approach to ethics. His first postulate is:

Don’t break the law.

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

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

Florman notes that whistle blowing is usually unnecessary. He suggests:

Try to influence events without becoming excessively disruptive. Work within the system.

5 Case studies with class discussion or a class debate are excellent for involving students in a discussion of ethics, either as part of a regular class or as part of seminar classes. 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 principle 1 of the code of ethics. Students in a senior seminar can become very involved in a discussion of the ethics of interview trip expenses and accepting a job. The explosion of the space shuttle Challenger serves as an interesting case study for any engineer (Florman, 1987; Singleton, 1991). Cooley et al. (1991) present a case study which includes the results of a trial in which they had the students role play different roles.

Ethics is a dry subject only if the professor makes it a dry subject. A little creativity can make the ethics portion of a class lively and interesting.

#### 12.4. 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.

#### 12.5. SUMMARY AND OBJECTIVES

After reading this chapter, you should be able to:

- Define methods to prevent cheating.
- 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.



**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 which 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.
- 3 List additional cheating methods and how to handle them.

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