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CENG 291: ENGINEERING IN SOCIETY

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# TRUTHFULNESS AND TRUSTWORTHINESS

- The standard of truthfulness in engineering is very high, much higher than in everyday life. It imposes what many consider an absolute prohibition on deception, and in addition it establishes a high ideal of seeking and speaking the truth.
- Ethicists have devoted considerable attention to understanding the nuances of deception in everyday life. Most conclude that deception  is sometimes a necessary evil, and in moderation, it is a healthy part of living as a social being.
- Professional life often requires that heightened importance be given to certain moral values, and that applies to truthfulness in engineering.

# CONT'D TRUTHFULNESS

- The truthfulness responsibility enters often into the cases discussed by the national society of professional engineers(NSPE) in its opinions of the board of ethical review. Summaries of a few such cases, each of which the board viewed as violating the NSPE code of ethics are listed below;
- An engineer who is an expert in hydrology and a key associate with a medium-sized engineering consulting firm gives the firm her two-week notice, intending to change jobs. The senior-manager at the consulting firm continues to distribute the firm's brochure, which lists her as an employee of the firm.

# TRUTHFULLNESS

- A city advertises a position for a city engineer/public works director, seeking to fill the position before the incumbent director retires in order to facilitate a smooth transition. The top candidate is selected after an extensive screening process, and on march 10, the engineer agrees to start april 10. By march 15, the engineer begins to express doubts about being able to start on april 10.
- An engineering working in an environment engineering firm directs a field technician to sample the contents of storage drums on the premises of a client. The technician reports back that the drums most likely contain hazardous waste, and hence require removal according to state and federal regulations. Hoping to advance future business relationships with the client, the engineer merely tells the client the drums contain “questionable material” and recommends their removal, thereby giving the client greater leeway to dispose of the material inexpensively.

# TRUSTWORTHINESS

- It centers on respect for autonomy. To deceive other persons is to undermine their autonomy, their ability to guide their own conduct. Deceit is a form of manipulation that undermines their ability to carry out their legitimate pursuits, based on available truths relevant to those pursuits.
- Most moral theories defend truthfulness along these lines. Duty ethics, for example, provides a straightforward foundation for truthfulness as a form of respect for a person's autonomy.
- Rights ethics translates that idea into respect for a person's rights to exercise autonomy
- Honesty has two primary meanings;
- I. Truthfulness, which centers on meeting responsibilities about truth,
- II. Trustworthiness, which centers on meeting responsibilities about trust. The meanings are interwoven because untruthfulness violates trust, and because violations of trust typically involve deception.

# CONT'D TRUSTWORTHINESS

- Engineering like all professions is based on exercising expertise within fiduciary (trust) relationships in order to provide safe and useful products.
- Untruthfulness and untrustworthiness undermine expertise by corrupting professional judgements and communications.
- They also undermine the trust of the public, employers, and others who must rely on engineers' expertise.
- Sound engineering is honest, and dishonesty is bad engineering.

# ACADEMIC INTEGRITY

- Academic dishonesty includes dishonesty among students, faculty, and other members of academic institutions. Academic dishonesty among students takes several forms as found below;
- Cheating: intentionally violating the rules of fair play in any academic exercise, for example, by using crib notes or copying from another student during at test.
- Fabrication: intentionally falsifying or inventing information, for example, by faking results of an experiment.
- Plagiarism: intentionally or negligently submitting others' work as one's own.
- Facilitating academic dishonesty: intentionally helping other students to engage in academic dishonesty.
- Failure to contribute to a collaborative project: failing to do one's fair share on a joint project.

# CONT'D ACADEMIC INTEGRITY

- Misrepresentation: intentionally giving false information to an instructor.
- Sabotage: intentionally preventing others from doing their work.
- Theft: stealing.
- Given the seriousness of academic dishonesty, and aware that we are all vulnerable to temptation, what can be done to foster academic integrity?

# WHY STUDENTS ENGAGE IN ACADEMIC DISHONESTY

- Performance worries
- Response to external pressures
- Losing financial aid
- Belief that professors are unfair
- Belief that since other students are cheating it is alright for me to do same.
- Belief that plagiarism is not a big deal but a victimless crime in which no one gets hurt.

# WHY STUDENTS DO NOT CHEAT

- Conviction that cheating undermines the meaning of achievement
- Self-respect
- Respect for teacher
- Fear of getting caught

# RESEARCH INTEGRITY

- Research in engineering takes place in many settings, including universities, government labs, and corporations. The exact moral requirements vary somewhat, according to the applicable guidelines and regulations, but the truthfulness responsibility applies in all settings

# EXCELLENCE VERSUS MISCONDUCT

- Truthfulness takes on heightened importance in research because research aims at discovering and promulgating truth. Integrity in research is about promoting excellence in these activities, and this positive emphasis on excellence should be kept paramount in thinking about honesty in research.
- The activity of reporting research is an important part of conducting research. Research results are useful when they are reported clearly, completely, in a timely manner, and honestly.
- Misconduct in research is given both wider and narrower definitions, developed in specific contexts and for different purposes.
- These definitions tend to be favored by universities, corporations and other groups whose members are liable to punishment for offenses, while government agencies have pushed for broader definitions.

# GIVING AND CLAIMING CREDIT

- Often there are pressures on researchers to varnish the truth when competing for professional recognition, not only because it brings ego gratification but also because it might involve winning jobs, promotion, and income. Outright fraud of the following types also occurs.
- Plagiarism, as defined earlier, is intentionally or negligently submitting others' work as one's own. In research, it is claiming credit for someone else's ideas or work without acknowledging it.
- Failure to give credit in many different settings within engineering, and the NSPE board of ethical review frequently comments on them.
- Misrepresenting credentials. Occasionally researchers forge credentials, creating widely publicized scandals.
- Misleading listing of authorship, whether of articles or other documents, is another area. It is unethical to omit a co-author who makes a significant contribution to the research,

# REPORTING MISCONDUCT

- There is a growing consensus that researchers have a responsibility to report misconduct by other researchers when the misconduct is serious and when they in a position to document it.
- Measures to protect individuals who responsibly report research misconduct are being implemented.

# CONSULTING ENGINEERS

- Consulting engineers work in private practice. They are compensated by fees for the services they render, not by salaries received from employers. Because of this, they tend to have greater freedom to make decisions about the projects they undertake. Their freedom though is not absolute. They share with salaried engineers the need to earn a living.

# ADVERTISING

- Some corporate engineers are involved in advertising because they work in product sales divisions. But within divisions, the advertising of services, job openings, and the corporate image are left primarily to advertising executives and the personnel department. By contrast, consulting engineers are directly responsible for advertising their services, even when they hire consultants to help them.
- Deceptive advertising normally occurs when products or services are made to look better than they actually are. This can be done in many ways including;

✓ By outright lies

✓ By half-truths

✓ Through exaggerations

✓ By making false innuendos, suggestions, or implications.

✓ Through obfuscation created by ambiguity, vagueness, or incoherence

✓ Through subliminal manipulation of the  unconscious.

# CONT'D ADVERTISING

- There are notorious difficulties in determining whether specific advertisements are deceptive or not. Clearly, it is deceptive for a consulting firm to claim in a brochure that it played a major role in a well known project when it actually played a very minor role.
- Advertisers of consumer products are generally allowed to suppress negative aspects of the items they are promoting and even to engage in some degree of exaggeration or puffery of the positive aspects.

# COMPETITIVE BIDDING

- Codes prohibited consulting engineers from engaging in competitive bidding, that is, from competing for jobs on the basis of submitting priced proposals.
- The use of competitive bidding is widely rejected by engineering firms as clients will have to rely almost exclusively on reputation and proven qualifications in choosing between them.

# EXPERT WITNESSES AND ADVISERS

- Engineers increasingly are asked to serve as consultants who provide expert testimony in adversarial or potentially adversarial contexts.
- The focus of such contexts might be on the past, as in explaining the causes of accidents, malfunctions, and other events involving technology.

# ABUSES

- HIRED GUNS; the most flagrant abuse is the unscrupulous engineer who makes a living by not even trying to be objective, but instead in helping attorneys to portray the facts in a way favorable to their clients.
- Financial biases; merely being paid by one side can exert some bias, however slight.
- Ego biases; most of us know from experience that adversarial situations evoke competitive attitudes that can influence judgement.
- Sympathy biases; the courts are filled with human drama in which people’s suffering is all too poignant. It is easy to identify with the plight of victims.