Engineering Ethics

Lecture – 7:
Confidentiality

Concept of Confidentiality

- One can misuse the truth not only by lying or otherwise distorting or withholding it but also by disclosing it in inappropriate circumstances.
- Engineers in private practice might be tempted to disclose confidential information without the consent of the client.
- Information may be confidential if it is either given to the engineer by the client or discovered by the engineer in the process of work done for the client.

An engineer can violate client–professional confidentiality in two ways:

First, she may break confidentiality when it is not warranted.

Second, when the higher obligation to the public requires it.

Violation of Client–Professional confidentiality: Case – 1

- The following is an example of the first type of abuse.
- Jane, a civil engineer, is contracted to do a preliminary study for a new shopping mall for Greenville, California. The town already has a mall that is 20 years old. The owner of the existing mall is trying to decide whether to renovate or close the old mall. He has done a lot of business with Jane and asks her detailed questions about the new mall. Jane answers the questions.

Violation of Client–Professional confidentiality: Case – 2

- The following hypothetical case raises more serious difficulties.

- Suppose engineer James inspects a building for a client before the client puts the building up for sale. James discovers fundamental structural defects that could pose a threat to public safety. James informs the client of these defects in the building and recommends its evacuation and repair before it is put up for sale.

- The client replies,
- James, I am not going to evacuate the building, and I am certainly not going to spend a lot of money on the building before I put it up for sale. Furthermore, if you reveal the information to the authorities or to any potential buyer, I am going to take whatever legal action I can against you. Not only that, but I have a lot of friends. If I pass the word around, you will lose a lot of business. The information is mine. I paid for it, and you have no right to reveal it to anyone else without my permission.

- James’s obligation to his client is clearly at odds with his obligation to the public.

- Although he may have an obligation to potential buyers, his more immediate and pressing one is to protect the safety of the current occupants of the building.

- James should probably try to find a creative middle way that allows him to honor his obligations to his client, the occupants of the building, and potential buyers.

- He might attempt to persuade the client that his intention to refuse to correct the structural defects is morally wrong and probably not even in his long-term self-interest.

- He might argue that the client may find himself entangled in lawsuits and that surely he would find it difficult to live with himself if a catastrophe occurred.

- Unfortunately, such an approach might not work.

- James’s client might refuse to change his mind. Then James must rank his competing obligations.

- Most engineering codes are clear that the engineer’s first obligation is to the safety of the public, so ***James must make public the information about the structural defects of the building.***

- The limits of client–professional confidentiality are controversial in most professions.

- In many states, physicians must reveal cases of patient’s health, even if it violates patient–physician confidentiality.

Intellectual Property

- Intellectual property is property that results from mental labor. It can be protected in several ways, including as:
- ***trade secrets,***
- ***patents,***
- ***trademarks, and***
- ***copyrights.***

Trade Secret

- Trade secrets are formulas, patterns, devices, or compilations of information that are used in business to gain an advantage over competitors who do not possess the trade secrets.
- The formula for Coca-Cola is an example of a trade secret.
- Trade secrets must not be in the public domain and the secrecy must be protected by the firm because trade secrets are not protected by patents.

Patents

- Patents are documents issued by the government that allow the owner of the patent to exclude others from making use of the patented information for 20 years from the date of filing.
- To obtain a patent, the invention must be new, useful, and non-obvious.
- As an example, the puncture-proof tire is patented.

Trademark

- Trademarks are words, phrases, designs, sounds, or symbols associated with goods or services.

- “Coca-Cola” is a registered trademark.

Copyright

- Copyrights are rights to creative products such as books, pictures, graphics, sculptures, music, movies, and computer programs.
- The author’s estate or heirs retain the copyright for 50 years after his or her death.
- Copyrights protect the expression of the ideas but not the ideas themselves.
- The script of Star Wars, for example, is copyrighted.

- Many companies require their employees to sign a patent assignment whereby all patents and inventions of the employee become the property of the company, often in exchange for a token fee of $1.

- Sometimes, employees find themselves caught between two employers with respect to such issues.

- Consider the case of Bill, a senior engineering production manager of a tire manufacturing company, Roadrubber, Inc. Bill has been so successful in decreasing production costs for his company by developing innovative manufacturing techniques that he has captured the attention of the competition. One competing firm, Slippery Tire, Inc., offers Bill a senior management position at a greatly increased salary. Bill warns Slippery Tire that he has signed a standard agreement with Roadrubber not to use or divulge any of the ideas he developed or learned at Roadrubber for 2 years following any change of employment.

- Slippery Tire’s managers assure Bill that they understand and will not try to get him to reveal any secrets and also that they want him as an employee because of his demonstrated managerial skills. After a few months on the job at Slippery Tire, someone who was not a part of the earlier negotiations with Bill asks him to reveal some of the secret processes that he developed while at Roadrubber. When Bill refuses, he is told, “Come on, Bill, you know this is the reason you were hired at the inflated salary. If you don’t tell us what we want to know, you’re out of here.” This is a clear case of an attempt to ***steal information***.

- “Professional Obligations,” item III.1.d of the NSPE code, says, “Engineers shall not attempt to attract an engineer from another employer by false or misleading pretenses.”

- Similarly, the Model Rules of Professional Conduct for the National Council of Examiners for Engineering and Surveying (NCEES) require engineers to “not reveal facts, data, or information obtained in a professional capacity without the prior consent of the client or employer as authorized by law” (I.1.d).

Line-drawing Method

- Many ethical problems can be best dealt by employing line-drawing method.
- Here is a simple illustration of how such a line-drawing analysis might work.
- In the following tables, the Positive column refers to features that, if present, count in favor of the action’s being morally acceptable.
- The Negative column refers to features that, if present, count against the action’s being morally acceptable.

Case 1

- Tom is a young engineering graduate who designs automobile brakes for Ford. While working for Ford, he learns a lot about heat transfer and materials. After 5 years, Tom leaves Ford to take a job at General Motors. While at General Motors, Tom applies his knowledge of heat transfer and materials to design engines.

- ***Is Tom stealing Ford's intellectual property?***

Case 1

Feature	Positive	Test Case	Negative
Generic Information	Yes	X————	No
Different Application	Yes	X————	No
Information Protected as a Trade Secret	No	X————	Yes

Case 1

- ***In Case 1, Tom has not stolen Ford's intellectual property.***

- Although it is true that he used generic scientific knowledge acquired while he was at Ford, the information is available to anyone.

- The application of the generic scientific knowledge is markedly different at General Motors.

Case 2

- Tom is a young engineering graduate who designs automobile brakes for Ford. While working for the company, he learns a lot about heat transfer and materials. After 5 years, Tom leaves Ford to take a job at General Motors. While at General Motors, Tom applies his knowledge of heat transfer and materials to design brakes.

- ***Is Tom stealing Ford's intellectual property?***

Case 2

Feature	Positive	Test Case	Negative
Generic Information	Yes	X————	No
Different Application	Yes	————X	No
Information Protected as a Trade Secret	No	X————	Yes

Case 2

- In Case 2, Tom applies his knowledge to the same area, brake design, but the knowledge is still generic scientific knowledge over which Ford has no claim, even if Tom acquired this knowledge while at Ford.
- Assume the two brake designs are different.

- ***Tom has not stolen Ford's intellectual property.***

Case 3

- Tom is a young engineering graduate who designs automobile brakes for Ford. While working for Ford, Tom helps develop a new brake lining that lasts twice as long as conventional brake linings. Ford decides to keep the formula for this brake lining as a trade secret. After 5 years, Tom leaves Ford to take a job at General Motors. While at General Motors, Tom tells the company the formula for the new brake lining.

- Is Tom stealing Ford’s intellectual property?

Case 3

Feature	Positive	Test Case	Negative
Generic Information	Yes	——————X	No
Different Application	Yes	——————X	No
Information Protected as a Trade Secret	No	——————X	Yes

- In Case 3, Tom applies his knowledge to the same area, brake design, and the knowledge is specific knowledge of brake design over which ***Ford has a rightful claim.***

- ***Tom's action in Case 3 is wrong.***