GEEM 445

Engineering Ethics and Professional Practices

Ethics & Engineering Ethics

What we are going to discuss today?

- What is code of ethics?
- Why the professional should support the code?
- Function of code ethics.
- Important terms
- Fundamental principles of ASCE Code of Ethics.
- Fundamental Canons of ASCE Code of Ethics
- Guidelines to Practice under the fundamental Canons of (ASCE) Ethics.

What is Code of Ethics?

- A **guiding set of principles**, intended **to instruct professionals**, to **act in a manner** that is **honest** and that is **beneficial** to all stakeholders.

Why the professionals should support the code of Ethics? (PAMO)

- To **protect the professionals** from being injured /harmed by others.
- To **assure each engineer** has an working environment.
- To **make the profession a practice**.
- To **obligate fairness from his past** and thereby **generating benefits** for engineers.

Functions of Code of Ethics: (SCS PSI)

- **Serve as a collective recognition** by members of a profession of its responsibilities.
- **Create an environment** in which the ethical behavior is the norms.
- **Serve as a guide or reminder** in specific situation.
- **Process of developing and modifying** a code of ethics can be valuable for a profession.
- **Serve as an educational tools**, can be discussed in class room and professional meeting.
- **Indicate others that the profession is seriously concerned** with responsible professional conduct.

Terms of Code of Ethics

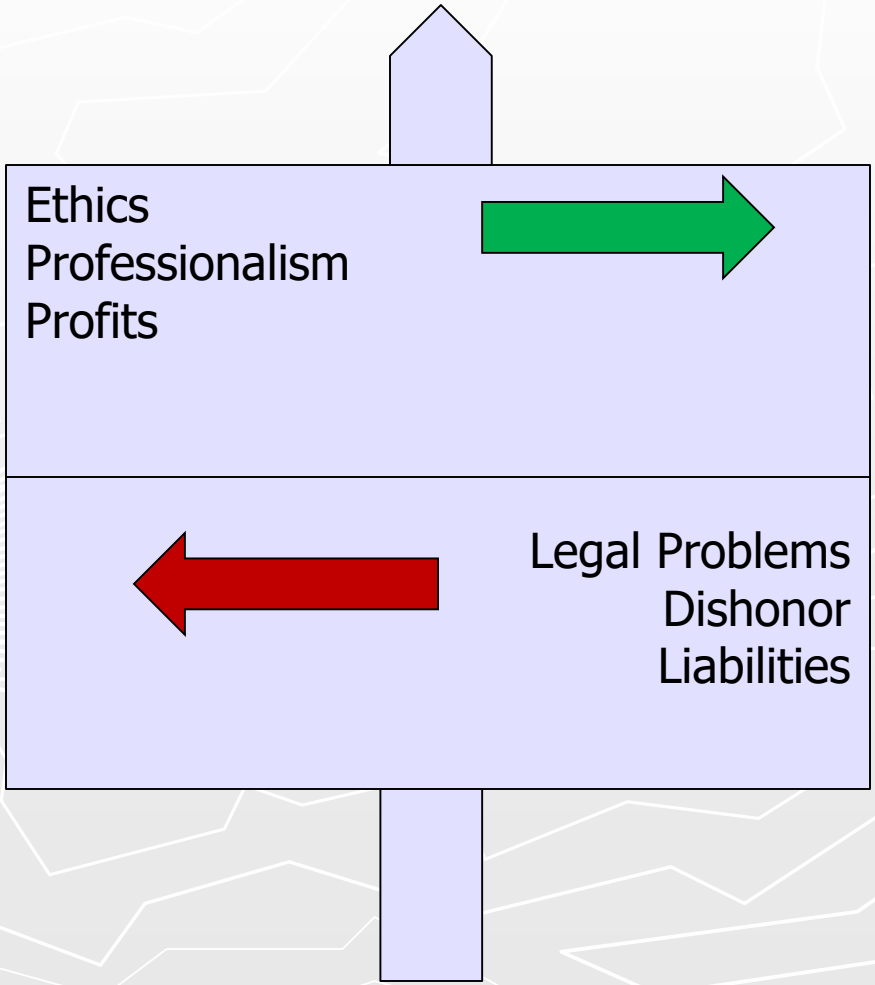
- **Principles** – refer to a **fundamental and comprehensive doctrine (morality)** regarding behavior and conduct.

- **Canons** – are the **broad principles** of conduct.

- **Standards** – are the **more specific goals** towards which the individual should aspire in professional performance and behavior.

- **Rules of conducts** – are mandatory; violation of rule is the ground for disciplinary action. **Rules can implement more than one canon or standard.**

Adherence to ethical standards make **choosing the right road** for civil engineers.



ASCE Code of Ethics (KHSS)

Fundamental principles: Engineers **uphold and advance** the **integrity**, **honor**, and **dignity** of the engineering profession by:

- Using their **knowledge and skills**, **for enhancement** of human welfare and the environment.
- Being **honest and impartial**, and **serving with fidelity** the public, their employers and clients.
- **Striving to increase** the **competence and prestige** of the engineering profession, and
- **Supporting** the professionals and technical societies of their discipline.

Fundamental Canons

Canon 1: Engineers shall **hold paramount the safety, health and welfare** of the public and shall **strive to comply with the principles of sustainable development** in the performance of their professional duties.

- **Official code of ethics** of most of the engineering societies.
- A **central ethical commitment** for engineers.

Case study: Imminently Dangerous Situation.

Brian Marshal:

- A c**ivil engineer** early in his carrier.
- Provide **Operations support** for a large oil and gas company.
- **Performs maintenance** at one of the operation sites and generally **works independently**.
- His **immediate supervisor** is not frequently on the sites.

Problem

- During routine **tank cleaning at the site**, he finds that the **support beams for a tank** are worn and corroded, and contain several holes.

His Judgement

- Condition of beams is a serious issue and should be **repaired immediately.**
- However this tank provides **important backup support**, so during the time the tank is out of service, there is an increased risk of an unplanned shutdown of the entire plant.

His Actions:

- **Notifies his supervisor by e-mail.**

Reply from Supervisor:

- **After several days**, he finally **receives a phone call** from his supervisor, who tells him that the beams are not a serious issue and tank should remain in service.

- **Brian disagrees with the judgement**, and he is also worried about his personal liability, because his supervisor's decision has been **transmitted by phone** rather than in writing.

Brian's next action:

- He decides to call his Company's internal '**Asset Integrity Group (AIG)',** which initially recommend that tank to stay out of service while repairs are made.
- He also contract contacts the company's '**Health, Environmental and Safety Group'**, which makes no recommendation on how to proceed.

Supervisor's Call:

- Calls Brian again, to stress that that **immediate repairs are not necessary.**

Again talk to AIG

- They change the recommendation and tell him that it is **acceptable to postpone repairs for another year.**

His Actions:

- **Sends an email to all parties conforming their recommendations and agreeing to postpone repairs work for a year.**

Outcomes of His Findings:

- His email gives him a **written record** of how the final decision was made and who is responsible for it.
- Written record would greatly **validate his effort to provide safety**, but any legal action is dependent on how good the attorneys are.
- He may **still go to the court** but win the case in the end.
- Tank will remain in service for another year.

Fundamental Canons

Canon 1: Engineers shall **hold paramount the safety, health and welfare** of the public and shall strive to **comply with the principles of sustainable development** in the performance of their professional duties.

Canon 2: Engineers shall **perform services only in areas of their competence.**

Canon 3: *Engineers shall **issue public statement only** **in an objective and thoughtful manner.***

Canon 2: Engineers shall **perform services only in areas of their competence.**

- State a **deontic principles** forbidding engineers from acting as engineers outside their ow area of training and expertise.
- **Principle derived from obligations**, the engineers has toward three parties: the **public,** the **employer** and the engineering **profession.**

- **First:** Public welfare and safety require that engineering projects be **carried out competently**.
- **Second**: Those who hire engineers to do the works for them need to know that the engineer is **not misrepresenting his or her skills**.
- **Third or Final**: engineering profession thrives when there is general trust in its practitioners and in the **quality of their training**.

Canon 3: *Engineers shall* ***issue public statement only*** ***in an objective and thoughtful manner.***

- State a **deontic principles** **forbidding engineers** from acting as engineers outside their own area of training and expertise.
- **Principle derived** from obligations, the engineers has toward three parties: the public, the employer and the engineering profession.

First: Public welfare and safety require that engineering projects be **carried out competently**.

Second: Those who hire engineers to do the works for them need to know that the engineer is not misrepresenting his or her skills.

Third or Final: engineering profession thrives when there is general trust in its practitioners and in the quality of their training.

Trust is undermined by incompetent work, specially when such work is misrepresented by the engineer as being within his or her certified skillset.

Canon 4: *Engineers shall* ***act in professional matters*** *for each employer or client* ***as faithful agents or trustees, and shall avoid conflicts of interests.***

Canon 5: *Engineers shall* ***build their professional reputation on the merits*** *of their services and shall* ***not compete unfairly*** *with others.*

Canon 6: *Engineers* ***shall act in such a manner*** *as to* ***uphold and enhance*** *the* ***honor, integrity and dignity*** *of the engineering profession and* ***shall act with zero tolerance*** *for* ***bribery, fraud, and corruption****.*

Canon 7: *Engineers* ***shall continue their professional development throughout their carriers****, and shall provide opportunities for the professional development of those engineers under their supervision.*

Guidelines to Practice under the fundamental Canons of Ethics (ASCE):

Canon 1: Engineers shall **hold paramount the safety, health and welfare** of the public and shall strive to **comply with the principles of sustainable development** in the performance of their professional duties.

Guideline to Practice:

Engineers shall **approve or seal only to those design documents reviewed or prepared by themselves;** which are determined to be **safe for public health and welfare** with the **accepted engineering standard**.

Canon 2: Engineers shall **perform services only in areas of their competence.**

Guideline to Practice:

Engineers shall undertake to **perform engineering assignment only when qualified by education or experience or both i**n the technical field of engineering involved.

Canon 3: *Engineers shall* ***issue public statement only in an objective and thoughtful manner.***

Guideline to Practice:

Engineers should endeavor to **extend the public knowledge** of engineering and sustainable development and shall **not participate in the dissemination of untrue, unfair and exaggerated statement regarding engineering**.

Canon 4: *Engineers* ***shall act in professional matters*** *for each employer or client* ***as faithful agents or trustees, and shall avoid conflicts of interests.***

Guideline to Practice:

Engineers shall **not accept professional employment outside their regular works or interests without the knowledge of their employers.**

Canon 5: *Engineers shall* ***build their professional reputation on the merits of their services and shall not compete unfairly with others.***

Guideline to Practice:

Engineers shall **not give, solicit or receive either directly or indirectly, any political contribution**, **gratuity**, or **any unlawful consideration in order to secure work**, **exclusive** of **securing salaried positions** through employment agencies.

Canon 6: *Engineers* ***shall act in such a manner*** *as* ***to uphold and enhance*** *the honor, integrity and dignity of the engineering profession and shall* ***act with zero tolerance*** *for bribery, fraud, and corruption.*

Guideline to Practice:

Engineers shall **act with zero tolerance for bribery, fraud, and corruption** in all engineering or construction activities in which they are engaged.

Canon 7: *Engineers* ***shall*** ***continue their professional development*** ***throughout their carriers****, and shall* ***provide opportunities*** *for the professional development of those engineers under their supervision.*

Guideline to Practice:

Engineers shall **keep current in their specialty fields** by **engaging** in professional practice, **participating** in continuing education courses, **reading** in technical literature, and **attending** professional meetings and seminars.

Ethics & Engineering Ethics

So far we have discussed today:

- What is code of ethics?
- Why the professional should support the code?
- Function of code ethics.
- Important terms
- Fundamental principles of ASCE Code of Ethics.
- Guidelines to Practice under the fundamental Canons of Ethics.

Thank you