



PROFESSIONAL ETHICS FOR PROFESSIONAL ENGINEERS © 1 PDH Course

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DEFINITIONS & CONCEPTS – Professional Ethics

Engineering, a “Profession”

Engineering is considered to be a "profession" rather than an "occupation" because of several important characteristics shared with other recognized learned professions, law, medicine, and theology: special knowledge, special privileges, and special responsibilities.

- Professions are based on a **large knowledge base requiring extensive training.**
- Professional skills are important to the **well-being of society.**
- Professions are **self-regulating**, in that they control the **training and evaluation processes** that admit new persons to the field.
- Professionals have **autonomy in the workplace**; they are expected to utilize their independent judgment in carrying out their professional responsibilities.
- Finally, professions are **regulated by ethical standards.**

(Harris,C.E., M.S. Pritchard, & M.J. Rabins, *Engineering Ethics: Concepts and Cases*, Wadsworth Publishing company, pages 27–28, 1995.)

Professional Engineer

- A person who is an **expert** in subject matter
- A person who is obliged to **protect client's data, processes, and information**
- Professional Engineers must fulfill their responsibilities while abiding by the engineering “**Code of Ethics,**” and “**Rules of Professional Conduct**”
- If the consultant develops analysis techniques, special skills, experience, and so forth while working for one client, he/she can use this when working for another client as long as it doesn't involve something deliverable under a contract with the former client (i.e. a specific software algorithm for the former client's specific process).

Note: References to “**engineer,**” in most legal documents or professional work, imply “**Professional Engineer.**”

Contract

A contract is a legally binding agreement to exchange goods and/or services.

Requirements of a contract:

A contract must be **clear, specific, and definite**, and must offer the following:

- Some form of conditional future consideration (such as payment)
- An acceptance of the offer

Conditions or premise of contract:

- Agreement must be **voluntary**
- All parties must have **legal capacity**
- The purpose of agreement **must be legal**

A contract should include the following:

- Statement of purpose
- Information about all associated parties
- Effective date
- Expiration date
- Duties/obligations of all parties
- Timeline
- Amount/type of compensation/remittance
- Compensation schedule and terms
- Standard “boilerplate” clauses
- Signatures of all parties or their agents, included dates signed
- Declaration of authority of the signatories to bind contracting parties
- All supporting documents

Professional Liability

Professional liability constitutes potential legal consequences of actions that are determined to be illegal, irresponsible, and/or immoral and unethical.

Professional Liability Remedy Example

Errors and Omissions Insurance:

- It is carried by most firms
- It typically covers engineers employed by firm
- It protects against claims due to inadvertent mistakes
- It does not protect against claims due to *personal negligence, fraud, or malpractice*

Sustainability

Sustainability is the attribute of any design or development that seeks to *minimize negative impacts on the environment* such that that the present generation's resource needs do not compromise the resource needs of future generations.

Sustainability and Sustainable Design

It is the responsibility of the engineer to consistently advise the client as to how the design (i.e., the project, asset, capital investment) will stand up to the effects of the environment, age, and usage.

Example: In conformance to the “sustainability” responsibility of an engineer, he/she advises a client that the *replacement* equipment selected for a effluent scrubbing system has a design life of 10 years, versus construction of a *new system – based on the latest technology* - that would last over 40 years.



Code of Ethics for Professional Engineers

Introduction to Professional Code of Ethics

- Code of ethics is a system of principles or rules for conduct and decision making in professional situations
- A code of ethics is **not** typically enforced by law.
- An action may be legal and still violate a code of ethical or professional behavior.
- All major US engineering professional societies have adopted codes of ethics.
- Most have adopted the Code of Ethics of Engineers, as developed by the Accreditation Board of Engineering and Technology (ABET).

Introduction to Professional Code of Ethics, Contd.:

- In addition, the National Council of Examiners for Engineering and Surveying (NCEES) has developed the Model Rules of Professional Conduct as a guide for state registration boards.

Code of ethics require that an engineer must:

- A. Render faithful, honest, professional service
- B. Represent the interests of employers and clients
- C. Protect public health, safety, and welfare

Rules of Professional Conduct, in Descending Priority¹:

- I. Licensee's Obligation to Public
- II. Licensee's Obligation to Employer and Clients
- III. Licensee's Obligation to Other Licensees

¹ See Model Rules, Section 240.15, Rules of Professional Conduct, NCEES Handbook

I. Obligation to Society or Public:

- This is the most important obligation of the engineer and it takes precedence over all others.
- “Licensees, in the performance of their services for clients, employers, and customers, shall be cognizant that their first and **foremost responsibility is to the public welfare.**”
- “Engineers shall hold paramount the safety, health, and welfare of the public ... in the performance of their professional duties.” (American Society of Civil Engineers Code of Ethics)
- Be a guardian of the public safety.
- Submit truthful and complete reports, statements, and testimonies.
- Don’t abuse credibility.
- Don’t be involved in fraud.
- Inform state board of possible ethics violations.

Case Study 1 – Illustration of 1st Code of Conduct

A junior engineer in an engineering firm notices a detail in a design that she feels has the potential to be dangerous to end users. Her supervisors explain that this detail was incorporated in the design by the firm to save manufacturing time and cost. Furthermore, they assure her that although the analysis is technically correct, this shortcut has been used for several years and the firm has never been accused of any wrongdoing. What should the engineer do at this juncture?

- A. Go along with the advice of the more senior engineers. They have more experience in the field and are most likely right. Besides, if some harm does come from the design, they will take the blame.
- B. Ask one of her college professors an expert in the field, to look at the plans and make a recommendation.
- C. Bring the issue to the attention of the company's upper nontechnical management.
- D. Report the company's violation to the state board and any other appropriate regulatory agencies.

Case Study 1 – Illustration of 1st Code of Conduct - Answer

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Case Study 2 – Illustration of Establishment of Competence.

A professional engineer, first licensed 33 years ago, is asked to act as a consultant on a newly developed, computerized control system for a public transportation system. The engineer may accept this project as long as:

- (A) The engineer's original area of specialization was transportation systems.
- (B) The engineer has regularly attended annual meetings of a professional engineering society the engineer is competent in the area of modern control systems.
- (C) The engineer's professional license has not lapsed.
- (D) The engineer is competent in the area of modern control systems.

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- (D) **The engineer is competent in the area of modern control systems.**

Case Study 3 – Illustration of Establishment of Competence.

A registered engineer is being interviewed for television on a matter of expertise that affects the public safety. The interviewer asks a question about the chances for a cure for AIDS. In accordance with the code of ethics, the engineer should:

- (A) Express his opinion but admit having no special knowledge in this area
- (B) Suggest everyone get an AIDS test
- (C) Recount what he or she read in a magazine article on the subject
- (D) Decline to comment

Case Study 3 – Illustration of Establishment of Competence - Answer

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- (D) Decline to comment**

II. Obligations to Employers or Clients

Registered engineers' obligations to employers or clients are secondary to their obligation to society. **Where there is a conflict, the interests of society (especially regarding safety) take precedence.**

- Accept only assignments the engineer is qualified to complete.
- Don't sign and seal plans or documents on something the engineer is not competent in or that were not prepared under his/her direct supervision.
- Coordinate projects that include segments in which they are not competent **only if a qualified registered engineer signs and seals** plans and documents for those segments of the project.
- Protect facts, data, and information belonging to the employer or client.

II. Obligations to employers or clients, contd.

- Don't accept anything of value for work from any other parties except the employer or client, unless agreed to by all parties.
- Make prior disclosure of any actual or perceived conflicts of interest.
- Don't contract with a government body if a member of the engineer's organization has influence on the government body's contracting decisions. Conversely, if the engineer is part of a government body and can influence contracting decisions, the engineer should not contract with any outside organization to which he or she belongs.

Case Study 4

Under what circumstances can a registered engineer (lead) sign and seal plans or documents he or she did not prepare?

- (A) When practicing in a state different from the one in which the engineer is registered
- (B) When a second qualified registered engineer signs and seals plans or documents for those segments of the project the engineer is not competent in
- (C) When the plans or documents were prepared by someone under the (lead) registered engineer's direct supervision, and that other registered engineer is an expert in the subject matter
- (D) Under no circumstances

ANSWER to Case Study 4

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- (C) When the plans or documents were prepared by someone under the (lead) registered engineer's direct supervision, and that other registered engineer is an expert in the subject matter**
- (D) Under no circumstances

III. Obligations to other Licensees

A registered engineer's obligation to other licensees is less important than the obligation to society. Where there is a conflict, the interests of society (especially in regard to safety) take precedence.

However, a registered engineer is bound to these **obligations toward other licensees**:

- a) Don't falsely represent one's qualifications or the qualifications of associates.
- b) Don't solicit, accept, or give anything of value to secure work.
- c) Don't give a political contribution to influence the award of a contract by a public authority.
- d) Don't try to damage the careers of other licensees falsely.

III. Obligations to other Licensees, Contd.:

- e) There are specific circumstances where one can act against another licensee's career without it being a violation of this obligation. Such circumstances include:
 - i. When one licensee has reason to suspect that something another licensee has done, or will do, threatens the public safety
 - ii. When one licensee has reason to suspect another has violated, or will violate, ethical codes
 - iii. When one licensee has reason to suspect another has committed, or will commit, fraud.

Case Study 5

A registered engineer has applied for a promotion at a firm she has been working at for several years. During an interview for the new position, she is asked to contrast her qualifications with other registered engineers at the firm who have applied for the same position. She should:

- (A) Withdraw her application for the position
- (B) Give a full accounting of all the ways her abilities and experience are superior to those of the other applicants
- (C) Demand to speak to the interviewer's supervisor
- (D) Decline to compare her qualifications but offer to describe them

ANSWER To Case Study 5

A registered engineer has applied for a promotion at a firm she has been working at for several years. During an interview for the new position, she is asked to contrast her qualifications with other registered engineers at the firm who have applied for the same position. She should:

- (A) Withdraw her application for the position
- (B) Give a full accounting of all the ways her abilities and experience are superior to those of the other applicants
- (C) Demand to speak to the interviewer's supervisor
- (D) Decline to compare her qualifications but offer to describe them**

References:

1) The NSPE Ethics Reference Guide:

<https://www.nspe.org/sites/default/files/resources/pdfs/Ethics/EthicsReferenceGuide.pdf>

2) The NSPE Code of Ethics:

<https://www.nspe.org/sites/default/files/resources/pdfs/Ethics/CodeofEthics/Code-2007-July.pdf>

**THANK YOU
FOR YOUR TIME**

QUESTIONS

