EE101
Electrical Engineering Profession Seminar

Professional and Ethical Responsibility

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Do you want a job, a career, or a profession?

job

> **paid occupation:** an activity such as a trade or profession that somebody does regularly for pay, or a paid position doing this

career

> **long-term or lifelong job:** a job or occupation regarded as a long-term or lifelong activity

profession

> **Occupation requiring extensive education:** an occupation that requires extensive education or specialized training

How to become an EE Professional:

Typically begins with education:

➡ Humanities, Social Science, Communication

➡ Math

➡ Science

➡ Technology

➡ Engineering

Life-long learning and training in:

Computer Engineering

Electromagnetics

Power

New emerging areas

Electronics

Signals and Systems

Professional Responsibility

Early concerns about the the EE profession:

technical challenges needed to be addressed lest progress be stymied by narrow commercial interests

public concern about the use and safety of electrical technology

social responsibilities of a true profession went beyond purely technical issues to include ethical and political concerns as well

- A Century of Electricals

An Exhibit by the IEEE History Center (1984)

Early Pioneer in Professional Organization

Not only was Steinmetz a brilliant engineer… but he was also a man deeply concerned about the proper role of the professional engineer in society…. In 1907, conflict over (defining his loyalties and responsibilities) prevented the AIEE from adopting a Code of Ethics for its members. When, five years later, the Institute resolved to try again to develop an acceptable Code, Steinmetz's was an influential voice, speaking out for the engineer's obligation to commit himself to the best possible technical practice while at the same time recognizing that his ultimate loyalty was to his client or employer. Above all, Steinmetz spoke out for his belief that engineers "must be more than mere engineering machines," a belief that still motivates many of the creators of modern electrical technology.

- A Century of Electricals
An Exhibit by the IEEE History Center (1984)

Professional Responsibility

➤ Who are electrical engineers accountable to in their work?

➤ What are electrical engineers responsible for?

Technology profoundly transforms society. How should technology be guided toward humane purposes? Who bears primary responsibility? Who but the engineers who create new machines, devices, structures, and systems are in the best position to know the properties, the capabilities, the liabilities, and the potential consequences of producing and deploying them? This responsibility is both individual and collective.

- NORMAN BALABANIAN 12/99

IEEE Code of Ethics

We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

IEEE Code of Ethics

1. to accept responsibility in making engineering decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that **might endanger the public** or the environment;

2. to avoid real or perceived conflicts of interest whenever possible, and to **disclose them to affected parties** when they do exist;

IEEE Code of Ethics

3. to be honest and **realistic in stating claims** or estimates **based on available data**;

4. to reject **bribery in all its forms**;

5. to **improve the understanding of technology**, its appropriate application, and potential consequences;

IEEE Code of Ethics

6. to **maintain and improve our technical competence** and to undertake technological tasks for others only if qualified by training or experience, or after **full disclosure of pertinent limitations**;

7. to **seek, accept, and offer honest criticism** of technical work, to acknowledge and correct errors, and to **credit properly the contributions of others**;

IEEE Code of Ethics

8. to **treat fairly all persons** regardless of such factors as race, religion, gender, disability, age, or national origin;

9. to **avoid injuring others**, their property, reputation, or employment by false or malicious action;

10. to **assist colleagues and co-workers in their professional development** and to support them in following this code of ethics.

Conclusions

➢ Who are we responsible to:

  ➜ Society

  ➜ Employers

  ➜ Each other (the profession itself)

Conclusions

➢ What are we responsible for
  ➡ Welfare, safety, and betterment of society
  ➡ Honest assessment of capabilities and commitment to agreements with employers
  ➡ The growth and integrity of the profession

Conclusions

➢ The effects of ethical behavior in a profession:

➡ Trust and empowerment

➡ Motivation to grow and work hard

➡ Personal respect and satisfaction

Conclusions

➢ The importance of a code of ethics

- ➡ Set expectations for professional behavior to those outside the profession
- ➡ Set expectations for professional behavior to those inside the profession
- ➡ Guidelines for when to carry out disciplinary action within the profession