

Preamble

Classes introducing the IEEE Code of Ethics and its application to engineering case studies have been held as part of Electrical Engineering Program. The paper by Fleddermann (Engineering Ethics Cases for Electrical and Computer Engineering Students, 2000) is target for EE design students and has been assigned for the students to find online and review in depth. The following questions are designed to evaluate the students understanding of using the IEEE Code of Ethics as a guide to EE behavior.

This is an individual evaluation, no notes are permitted other than the IEEE Code of Ethics handout. Select the best single answer per question.

The Flaw in the INTEL PENTIUM Chip

In late 1994 a flaw was found in the **INTEL PENTIUM** chip that was being used in 80% of personal computers. The flaw caused double precision arithmetic to calculate incorrect answers. INTEL was aware of this flaw before the release of the chip and at first offered to replace the chip if the user could show a need, and later would replace it on demand.

1.- What does the IEEE Code of Ethics say about the selling products known to be defective?

- a) it is acceptable to hide product defects to the benefit of your company;
- b) to disclose promptly factors that might endanger the public or the environment;
- c) to be honest and realistic in stating claims or estimates based on available data;
- d) both 'b' and 'c'.

2.- What does the IEEE Code of Ethics say about the responsibilities of the engineers working on a product they know to be flawed?

- a) to accept responsibility in making decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
- b) to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
- c) to seek, accept, and offer criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
- d) to avoid injuring others, their property, reputation, or employment by false or malicious actions.
- e) all of the above.

The Bay Area Transit (BART) System

In the late 1940s the Bay Area Rapid Transit system BART was developed as a high tech rail system that used a radio communications based automatic train control (ATC) technology that had never been tested in a commuter train. Three engineers who worked on various parts of the ATC became concerned about the lack of testing of some components and lack of oversight on the project by BART management and that their concerns were not be taken seriously. The three engineers contacted a member of BART Board and reported their findings, contravening a policy that all communications to the board was through the general manager and a few select others. The three engineers were dismissed.

1.- What does the IEEE Code of Ethics say about the responsibilities of the engineers about informing others about potential problems?

- a) to accept responsibility in making decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
- b) nothing in this case because there was no real danger to the public or the environment;
- c) you are responsible only up to the point where you could lose your job.

2.- The dismissal of the three engineers for taking a stand in support of public safety issues would violate which of the IEEE Code of Ethics ?

- a) to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
- b) to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;
- c) to avoid injuring others, their property, reputation, or employment by false or malicious action;
- d) to assist colleagues and co-workers in their professional development and to support them in following this code of ethics;
- e) all of the above.

EE 211 Circuits and Signals I

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:

1. to accept responsibility in making 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;
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;
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;
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.