9.3 Software Engineering Code of Ethics

Preamble of Code

- Software engineers have opportunities to do good or do harm
- Software engineers ought to be committed to doing good
- Eight principles identify key ethical relationships and obligations within these relationship
- Code should be seen as a whole, not a collection of parts
- Concern for the public interest is paramount

Eight Principles Identify Morally Responsible Relationships

- Public
- Client and employer
- Product
- Judgment
- Management
- Profession
- Colleagues
- Self

Act Consistently with Public Interest

1.01 “Accept full responsibility for own work”
1.02 Balance competing interests
1.03 Approve software only if it is safe
1.04 Disclose actual/potential dangers
1.05 “Cooperate in efforts to address” public concerns
1.06 “Be fair and avoid deception in all statements”
1.07 Consider factors that diminish access to software
1.08 “Volunteer professional skills to good causes”

Clause 1.03
Approve Software Only If It Is Safe

Act in Best Interest of Client, Employer

2.01 Act within areas of competence

2.02 Don't use software obtained illegally

2.03 Only use property in authorized ways

2.04 Ensure documents are approved

2.05 Respect confidentiality

2.06 Promptly report problems with project

2.07 Report issues of social concern

2.08 Refuse outside work detrimental to job

2.09 Put employer's/client's interests first, unless overriding moral concern

Clause 2.02
Don’t Use Software Obtained Illegally

Ensure Products Meet Highest Standards

3.01 Aim for “high quality, acceptable cost and a reasonable schedule,” making trade-offs clear

3.02 “Ensure proper and achievable goals”

3.03 Face up to “ethical, economic, cultural, legal and environmental” issues

3.04 Ensure you are qualified for proposed work

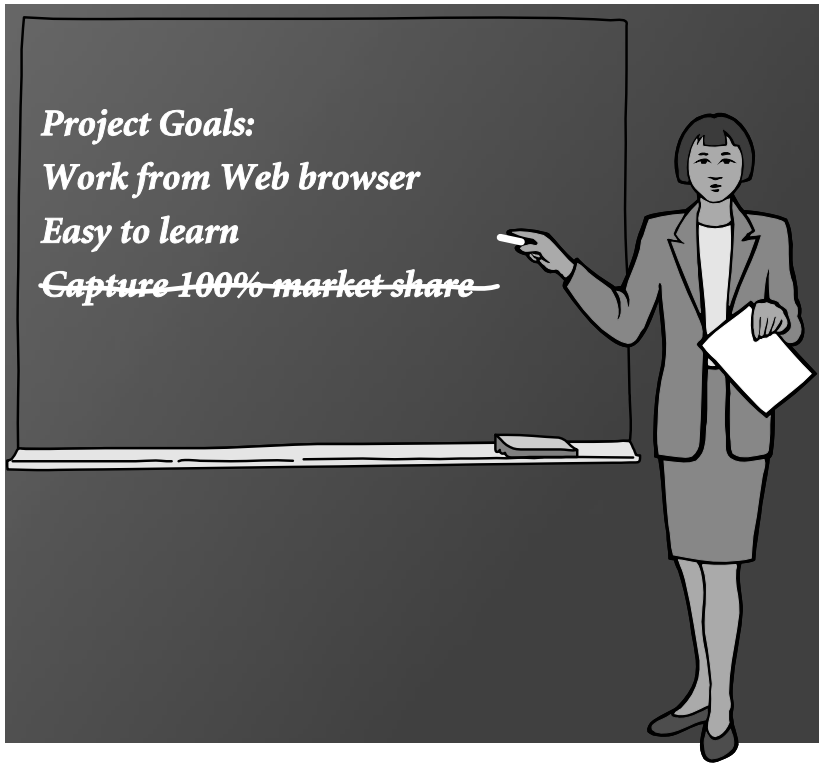
3.05 Use appropriate project methodologies

3.06 Follow the most appropriate professional standards

3.07 “Strive to fully understand the specifications”

3.08 Ensure the specifications are correct and approved

Clause 3.02
"Ensure Proper and Achievable Goals"



Ensure Products Meet Highest Standards

3.09 "Ensure realistic quantitative estimates of cost, scheduling, personnel, quality and outcomes"

3.10 "Ensure adequate testing, debugging, and review of software and related documents"

3.11 "Ensure adequate documentation"

3.12 Develop software and documents that respect privacy of those affected by software

3.13 Use only accurate data appropriately acquired

3.14 Maintain data integrity

3.15 Use same standards for software maintenance as software development

Maintain Integrity in Professional Judgment

4.01 "Temper all technical judgments by the need to support and maintain human values"

4.02 Understand and agree with documents before endorsing them

4.03 Remain objective when evaluating software or related documents

4.04 Do not engage in deceptive financial practices

4.05 Disclose conflicts of interest

4.06 Do not participate in decisions in which you, your employer, or your client has a potential conflict of interest

Promote Effective Project Management

5.01 Ensure good project management procedures

5.02 Ensure software engineers know standards

5.03 Ensure software engineers know policies and procedures for protecting confidential information

5.04 Take employees' abilities into account before assigning work

5.05 Ensure reasonable estimates are made

5.06 Give full and accurate information to potential employees

Promote Effective Project Management

5.07 Pay employees fairly

5.08 Do not unjustly prevent a qualified person from taking a job

5.09 Work out fair intellectual property agreements

5.10 Provide employees charged with misconduct due process

5.11 Do not ask someone to do anything violating the Code

5.12 "Do not punish anyone for expressing ethical concerns about a project"

Advance the Profession

6.01 Help create an environment supporting ethical conduct

6.02 "Promote public knowledge of software engineering"

6.03 Participate in professional activities

6.04 Support others who are trying to follow this Code

6.05 Do not promote self-interest at expense of profession, client, or employer

6.06 Obey all laws unless there is an overriding public interest

6.07 Do not deceive others regarding the characteristics of software

Clause 6.01 Help Create An Environment Supporting Ethical Conduct

Advance the Profession

6.08 Take responsibility for finding, correcting, and reporting errors in software and documentation

6.09 Ensure others know you are committed to the Code and what that means

6.10 Do not associate with businesses and organizations that are in conflict with Code

6.11 Understand violating the Code is inconsistent with being a professional

6.12 Share concerns about Code violations with the people involved

6.13 “Blow the whistle” when no alternative to reporting significant Code violations

Be Fair to and Supportive of Colleagues

7.01 “Encourage colleagues to adhere to this Code”

7.02 “Assist colleagues in professional development”

7.03 Give others the credit they deserve

7.04 Be objective when reviewing the work of others

7.05 Give colleagues a fair hearing

7.06 Help colleagues remain aware of work practices

7.07 Do not unfairly interfere with another’s career, but protect the public interest

7.08 Bring in experts for situations outside your own area of competence.

Participate in Lifelong Learning

8.01 Stay current with developments in field

8.02 Improve ability to create high quality software

8.03 Improve ability to produce high quality documentation

8.04 Improve understanding of software and documentation used in work

8.05 Improve knowledge of relevant standards

8.06 Improve knowledge of this Code and its application

8.07 Do not treat others unfairly because of prejudices

8.08 Do not influence others to break the Code

8.09 “Recognize that personal violations of this Code are inconsistent with being a professional software engineer”

Clause 8.02 Improve Ability to Create High Quality Software

ACM Code of Ethics

ACM Code of Ethics

Adopted by ACM Council 10/16/92.

- 24 imperatives formulated as statements of personal responsibility
- contains many, but not all, issues professionals are likely to face.

http://www.acm.org/constitution/code.html

ACM Code of Ethics vs. Joint ACM/IEEE Software Engineering Code of Ethics

- Both codes are valid, and they do clearly overlap

- The ACM/IEEE Software Engineer Code is more targeted at the job of a software engineer.
- The ACM Code is more general for all computing professionals.

ACM Code of Ethics

- Section 1 outlines fundamental ethical considerations

- Section 2 addresses additional, more specific considerations of professional conduct.

ACM Code of Ethics

- Section 3 pertains more specifically to individuals who have a leadership role, whether in the workplace or as a volunteer, with organizations like ACM.
- Principles involving compliance with this Code are given in Section 4.

1.1 Contribute To Society And Human Well-being

- An essential aim of computing professionals is to **minimize negative consequences of computing systems**, including threats to health and safety.

1.1 Contribute To Society And Human Well-being

- When designing or implementing systems, computing professionals must attempt to ensure that:
  - The products of their efforts will be used in socially responsible ways,
  - Will meet social needs, and
  - Will avoid harmful effects to health/welfare.

1.2 Avoid Harm To Others

- **Harm** means injury or negative consequences, such as undesirable loss of information, loss or property, property damage, or unwanted environmental impacts.

1.3 Be Honest And Trustworthy

- **Honesty** is an essential component of trust. Without trust an organization cannot function effectively. The honest computing professional will not make deliberately false or deceptive claims about a systems or system design, but will instead provide full disclosure of all pertinent system limitations and problems.

1.3 Be Honest And Trustworthy

- A computer professional has a duty to be honest about his or her own qualifications, and about any circumstances that might lead to conflicts of interest.

1.4 Be Fair And Take Action Not To Discriminate

- The values of equality, tolerance, respect for others, and the principles of equal justice govern this imperative. Discrimination on the basis of race, sex, religion, age, disability, national origin, or other such factors is an explicit violation of ACM policy and will not be tolerated.

1.5 Honor Property Rights Including Copyrights / Patents

- Violation of copyrights, patents, trade secrets and the terms of license agreements is prohibited by law in most circumstances.
- Even when software is not so protected, such violations are contrary to professional behavior. Copies of software should be made only with proper authorization. Unauthorized duplication of materials must not be condoned.

1.7 Respect The Privacy Of Others

- It is the responsibility of professionals to maintain the privacy and integrity of data describing individuals.
- This includes taking precautions to ensure the accuracy of data, as well as protecting it from unauthorized access or accidental disclosure to inappropriate individuals. Furthermore, procedures must be established to allow individuals to review their records and correct inaccuracies.

1.7 Respect The Privacy Of Others

- This imperative implies that only the necessary amount of personal information be collected in a system, that retention and disposal periods for that information be clearly defined and enforced, and that personal information gathered for a specific purpose not be used for other purposes without consent of the individual(s).

1.8 Honor Confidentiality

- With respect to clients, employers, users, co-workers, other professionals.

2. More Specific Professional Responsibilities

- 2.3 know and respect existing laws pertaining to professional work

- 2.4 accept and provide appropriate professional review

2.5 Give Comprehensive And Thorough Evaluations...

- Of computer systems and their impacts, including analysis of possible risks
- Computer professionals must strive to be perceptive, thorough, and objective when evaluating, recommending, and presenting system descriptions and alternatives.

2.5 Give Comprehensive And Thorough Evaluations...

- Computer professionals are in a position of **special trust**, and therefore have a special responsibility to provide objective, credible evaluations to employers, clients, users, and the public.

3. Organizational Leadership

- 3.1 Articulate organization's responsibility to society…
- 3.5 … to dignity of users…
- 3.2/3.4 design systems that meet users' needs, and enhance the quality of working life; validate that the system developed meets requirements

4. Compliance With The Code

- 4.1 promote the principles... Each member should adhere to the code and encourage and support adherence by others
- 4.2 violations of the code are inconsistent with membership in the ACM. If a member does not follow the code, membership may be terminated

Referring to Codes of Ethics

- Written rules of one's profession
- Clear guidelines for behavior
- Authority/Legitimacy based upon:
  - Broad, participatory development by members of the field, especially 'elders'
  - Longevity—standing the 'test of time'
  - Clear statement of concern for the well-being of society—i.e., difficult to contradict
- Downsides:
  - Not generally legally binding
  - Do not provide airtight legal protection