

Code of Ethics by Professional Bodies: IEEE and ACM

Both IEEE and ACM have ethical codes that guide professionals in responsible and ethical behavior.

These codes ensure that engineers and computer scientists act in a way that benefits society, respects human rights, and upholds integrity.

Code of Ethics

- A code of ethics is a set of principles and guidelines designed to help individuals or organizations determine what is right or wrong in various situations, particularly in professional or organizational contexts.
- It outlines the moral values, duties, and responsibilities that should govern the behavior of members or employees.
- A code of ethics typically emphasizes integrity, transparency, fairness, accountability, respect for others, and the importance of upholding professional standards and societal values.

IEEE (Institute of Electrical and Electronics Engineers)

- **IEEE** is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. It focuses on fields such as electrical engineering, computer science, telecommunications, robotics, and artificial intelligence.
- **Founded in:** 1963 (by merging the American Institute of Electrical Engineers (AIEE) and the Institute of Radio Engineers (IRE)).
- **What it does:**
 - Publishes top research journals (like IEEE Transactions and IEEE Spectrum)
 - Organizes international conferences (like IEEE INFOCOM, IEEE ICC, IEEE GLOBECOM)
 - Develops technical standards (e.g., IEEE 802.11 for Wi-Fi, IEEE 5G standards)
 - Provides professional and educational resources for engineers

ACM (Association for Computing Machinery)

- **ACM** is a global organization focused on computing and information technology. It promotes research, education, and collaboration in computer science.
- **Founded in:** 1947
- **What it does:**
 - Publishes top research journals (like ACM Computing Surveys and ACM Transactions)
 - Organizes conferences (like ACM SIGCOMM, ACM SIGGRAPH, ACM ICSE)
 - Develops computing standards and best practices
 - Provides coding competitions, certifications, and education programs

IEEE code of ethics

<https://www.ieee.org/about/corporate/governance/p7-8.html>

IEEE: Uphold the Highest Standards of Integrity and Ethics

- 1. Prioritize Safety, Health, and Welfare
 - **What it means:** Always design and work on technologies that keep people safe, protect their health, and promote their well-being. If you notice something harmful, report it immediately.
 - **Example:** Imagine designing a self-driving car. You must ensure its software avoids accidents and follows traffic laws to keep everyone safe. Don't rush the product if it's not tested well enough, even if the company wants to save money.
- 2. Help Society Understand Technology
 - **What it means:** Explain new technologies and their potential impacts in simple terms so everyone can understand.
 - **Example:** Suppose you work on AI that predicts medical conditions. You should help doctors and patients understand how it works and its limitations, like why it might sometimes be wrong.

IEEE: Uphold the Highest Standards of Integrity and Ethics

- 3. Avoid and Disclose Conflicts of Interest
 - **What it means:** Don't let personal gains (like money or favors) interfere with your professional decisions. If there's a possible conflict, tell everyone involved.
 - **Example:** If you are hired to test software but your best friend developed it, inform your boss so they can assign someone else if needed.
- 4. Stay Lawful and Reject Bribes
 - **What it means:** Always follow the law and don't accept or offer bribes.
 - **Example:** If a vendor offers you a gift to choose their product for your company, refuse it. Decisions should be based on quality, not favors.

IEEE: Uphold the Highest Standards of Integrity and Ethics

- 5. Accept Criticism, Admit Mistakes, and Credit Others
 - **What it means:** Be open to feedback, admit errors, fix them, and always give credit where it's due.
 - **Example:** If your project team points out a bug you missed, thank them, fix it, and avoid blaming others. If someone's idea helped, acknowledge their contribution.
- 6. Stay Skilled and Be Honest About Your Abilities
 - **What it means:** Continuously learn to improve your skills. Only take tasks you're qualified for, or let others know your limitations upfront.
 - **Example:** If you are asked to work on cybersecurity but don't have enough expertise, tell your employer so they can provide training or assign someone else.

IEEE: Treat Everyone Fairly and Respectfully

- 7. Avoid Discrimination

- **What it means:** Treat everyone equally, regardless of their background or characteristics like gender, race, or religion.
- **Example:** When forming project teams, don't exclude someone just because they are from a different country or don't speak the same language fluently.

- 8. Avoid Harassment

- **What it means:** Don't engage in bullying, inappropriate jokes, or behaviors that make others uncomfortable.
- **Example:** Don't make fun of a classmate's accent or use social media to spread hurtful messages about a colleague.

- 9. Avoid Harming Others

- **What it means:** Don't harm others physically, emotionally, or professionally.
- **Example:** If you find out your competitor made a mistake, don't spread false rumors about them to ruin their reputation.

IEEE: Support and Uphold Ethical Behavior

- 10. Help Others Follow the Code
 - **What it means:** Encourage colleagues to follow these principles and support them if they report a violation.
 - Don't retaliate against whistleblowers: individuals who report unethical, illegal, or improper activities within an organization should not face punishment, discrimination, or any negative consequences for their actions. Retaliation can include actions like demotion, termination, harassment, or creating a hostile work environment. Protecting whistleblowers ensures transparency, accountability, and ethical behavior within an organization.
 - **Example:** Encourage colleagues to follow these principles and support them if they report a violation. Don't retaliate against whistleblowers.

ACM Code of Ethics

<https://www.acm.org/code-of-ethics>

GENERAL ETHICAL PRINCIPLES

- **1.1 Contribute to society and human well-being**

- Imagine you are designing a navigation app. While it helps people reach their destinations faster, it could also harm society if it misguides ambulances or spreads fake traffic alerts.
- **Key idea:** Use your skills to improve society, respect everyone, and avoid harm.
- **Example:** Suppose you build a health app for senior citizens. Ensure it is simple to use, protects their personal data, and supports accessibility (e.g., large fonts for better readability).

- **1.2 Avoid harm**

- When working on software, think about the potential impact if something goes wrong. For instance, a bug in a banking app could cause people to lose money, or an untested drone delivery system could crash into someone.
- **Key idea:** Always test your work thoroughly and fix issues quickly if they arise.
- **Example:** A gaming company rushes to release a game without testing it, and players lose saved progress due to a bug. Instead, prioritize quality over speed to avoid upsetting users.

GENERAL ETHICAL PRINCIPLES

- **1.3 Be honest and trustworthy**

- Think about your friends trusting you with their secrets. In the same way, when creating technology, always be transparent about its limitations or risks.
- **Key idea:** Don't mislead people or exaggerate your abilities. Be upfront and credible.
- **Example:** If you're developing an AI-powered camera app, clearly state if it struggles in low light instead of pretending it works perfectly.

- **1.4 Be fair and avoid discrimination**

- Imagine an exam app that doesn't work well on phones with older operating systems. It unfairly excludes students who can't afford the latest devices.
- **Key idea:** Treat everyone equally and ensure your technology is inclusive and accessible.
- **Example:** When creating a virtual classroom, include features like subtitles for students who are hard of hearing.

GENERAL ETHICAL PRINCIPLES

- **1.5 Respect others' work**

- Just like copying your friend's homework without credit isn't fair, stealing someone's code or ideas is wrong.
- **Key idea:** Give proper credit to the creators and follow copyright rules.
- **Example:** If you use open-source software to build a project, acknowledge the contributors in your work.

- **1.6 Respect privacy**

- Think of your diary being read by a stranger. That's how users feel when their personal data is leaked.
- **Key idea:** Protect user data and use it only for its intended purpose.
- **Example:** A fitness app should not sell users' location or health data to advertisers without their permission.

GENERAL ETHICAL PRINCIPLES

- **1.7 Honor confidentiality**

- If your friend shares a personal secret, you wouldn't broadcast it. Similarly, don't reveal sensitive information you're trusted with, like passwords or company strategies.
- **Key idea:** Maintain confidentiality unless it's necessary to report something unethical.
- **Example:** A developer accidentally sees private user messages while fixing a bug. They should not share or misuse that information.

2. PROFESSIONAL RESPONSIBILITIES

- **2.1 Strive for high quality**

- Imagine creating a paper rocket. If it's poorly folded, it won't fly. Similarly, sloppy code can cause crashes or glitches.
- **Key idea:** Aim for excellence in your work.
- **Example:** Test a mobile app on different devices and networks to ensure it works for everyone.

- **2.2 Maintain professional competence**

- You wouldn't trust a doctor who hasn't learned about the latest treatments. Similarly, as a computing professional, keep updating your skills.
- **Key idea:** Stay curious and keep learning.
- **Example:** Learn about cybersecurity trends to protect systems from modern threats.

2. PROFESSIONAL RESPONSIBILITIES

- **2.3 Know and respect rules**

- Imagine a traffic rule that says “No honking near hospitals.” Breaking it could disturb patients. Similarly, follow ethical and legal guidelines in computing.
- **Key idea:** Obey rules unless they are unethical, and challenge bad rules responsibly.
- **Example:** Follow data protection laws when building an app that stores user information.

- **2.4 Accept and provide professional review**

- Just like teacher reviews your homework, let others review your code to find errors or improve it. Similarly, as a computing professional, keep updating your skills.
- **Key idea:** Collaboration leads to better results.
- **Example:** Before launching an app, conduct a peer review to ensure it is secure and user-friendly.

2. PROFESSIONAL RESPONSIBILITIES

- **2.5 Evaluate systems thoroughly**

- If you're building a dam, you'll check how it handles floods. Similarly, evaluate the risks of your tech solutions.
- **Key idea:** Think ahead about possible risks and prepare solutions.
- **Example:** Test an autonomous car system to ensure it stops for pedestrians, even in foggy conditions.

- **2.6 Work only within your competence**

- If you don't know how to swim, don't volunteer as a lifeguard. Similarly, accept work only if you're qualified for it.
- **Key idea:** Honesty about your skills avoids bigger problems later.
- **Example:** If you are a web developer, don't take on a machine learning project unless you have been trained for it.

2. PROFESSIONAL RESPONSIBILITIES

- **2.7 Foster public awareness**

- When explaining tech, avoid jargon. Teach in ways that everyone understands.
- **Key idea:** Help people understand technology's benefits and risks.
- **Example:** Use simple videos to explain how to set up two-factor authentication for better online security.

- **2.8 Access resources responsibly**

- If you borrow a friend's laptop, you don't browse their personal files without permission. Similarly, don't access systems or data you're not authorized to use.
- **Key idea:** Respect boundaries in technology.
- **Example:** A student accidentally finds an admin password. They should report it instead of misusing it.

2. PROFESSIONAL RESPONSIBILITIES

- **2.9 Design secure systems**

- If you build a treehouse, make sure the ladder is strong. Similarly, design tech that is safe and secure for everyone.
- **Key idea:** Prioritize security to protect users and data.
- **Example:** Build a login system with two-factor authentication to protect user accounts from hackers.

NITC CSED: Academic Integrity

<https://minerva.nitc.ac.in/academic-integrity>