

Working Group 9 - Ethics

**Introductory slides on the topic
October 2022**

Introduction

Ethics vs. Morals

Diffen › English Language › Grammar › Words

Ethics and morals relate to “right” and “wrong” conduct. While they are sometimes used interchangeably, they are different: ethics refer to rules provided by an external source, e.g., codes of conduct in workplaces or principles in religions. Morals refer to an individual’s own principles regarding right and wrong.

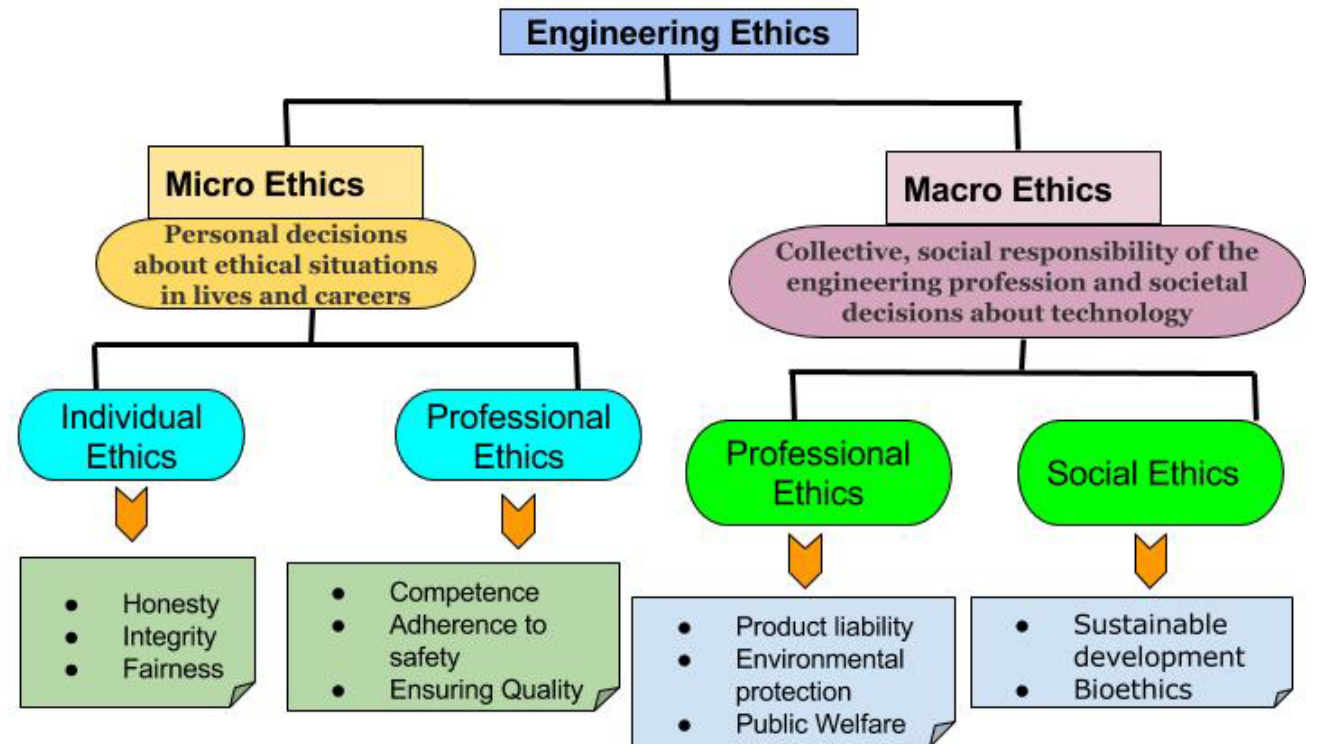
Comparison chart

	Ethics	Morals
What are they?	The rules of conduct recognized in respect to a particular class of human actions or a particular group or culture.	Principles or habits with respect to right or wrong conduct. While morals also prescribe dos and don'ts, morality is ultimately a personal compass of right and wrong.
Where do they come from?	Social system - External	Individual - Internal
Why we do it?	Because society says it is the right thing to do.	Because we believe in something being right or wrong.
Flexibility	Ethics are dependent on others for definition. They tend to be consistent within a certain context, but can vary between contexts.	Usually consistent, although can change if an individual's beliefs change.
The "Gray"	A person strictly following Ethical Principles may not have any Morals at all. Likewise, one could violate Ethical Principles within a given system of rules in order to maintain Moral integrity.	A Moral Person although perhaps bound by a higher covenant, may choose to follow a code of ethics as it would apply to a system. "Make it fit"
Origin	Greek word "ethos" meaning "character"	Latin word "mos" meaning "custom"
Acceptability	Ethics are governed by professional and legal guidelines within a particular time and place	Morality transcends cultural norms

At its simplest, **ethics is a system of moral principles**: they affect how people make decisions and lead their lives

Both **morality** and **ethics** loosely have to do with distinguishing the difference between “good and bad” or “right and wrong”. Many people think of morality as something that’s personal and normative, whereas ethics is the standards of “good and bad” distinguished by a certain community or social setting. For example, your local community may think adultery is immoral, and you personally may agree with that. However, the distinction can be useful if your local community has no strong feelings about adultery, but you consider adultery immoral on a personal level. By these definitions of the terms, your morality would contradict the ethics of your community

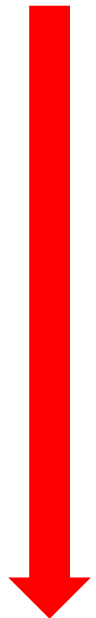
Introduction



1. Responsibilities

Introduction

Responsibility: in the first place, being held accountable for one's own actions and for their effects. The making of choices, the taking of decisions, but also failing to act are all things that can be regarded as types of actions



Role responsibility: the responsibility that is based on the role one has or plays in a certain situation. Typically simultaneous exemplificative roles: friend, parent, citizen, employee, engineer, expert and colleague. Each role brings with it certain responsibilities and one role may have responsibilities conflicting with those of other roles. Certain roles and their accompanying responsibilities can be formally laid down, for instance legally, in a contract or in professional or corporate codes of conduct



Professional responsibility: the responsibility that is based on one's role as a professional in as far it stays within the limits of what is morally allowed

Moral responsibility: responsibility that is based on moral obligations, moral norms or moral duties, all arising from moral considerations. It is not confined to the role, but extends beyond it and may limit it if some immoral responsibilities can be associated to it

Passive responsibility

Passive responsibility: backward-looking responsibility, relevant after something undesirable occurred.

Specific forms are:

- **accountability:** backward-looking responsibility in the sense of being held to account for or to justify one's actions/decisions towards those who are in a position to demand explanation for such actions/decisions
- **blameworthiness:** backward-looking responsibility in the sense of being a proper target of blame for one's actions or the consequence of one's actions. Four conditions need to apply to be blameworthy for actions and their consequences and the extent to which one can be blamed is determined by the degree to which these conditions are fulfilled:
 - *wrong-doing:* in carrying out a certain action, one has violated a norm (either legal, organizational or moral) or has done something wrong
 - *causal contribution:* one must have made a causal contribution to the consequences for which one is held responsible. Not only an action, but also a failure to act may often be considered a causal contribution. A causal contribution will be a necessary ingredient in the actual chain of events that led to the consequence
 - *foreseeability:* one must have been able to know the (bad) consequences of one's own actions. People cannot be held responsible if it is totally unreasonable to expect that they could be possibly have been aware of the (bad) consequences, but, at the same time, it is expected that people do everything that is reasonably possible to become acquainted with the possible (bad) consequences
 - *freedom of action:* one must have had freedom of action, that is, one must not have acted under compulsion or coercion. The question is, however, what exactly counts as coercion. For example, a person acting under the manipulative threat of sacrificing chances of promotion and career remains responsible for such actions because there is still an actual possibility to act differently (the person is not, strictly speaking, coerced)
- **liability**

Active responsibility

Active responsibility: responsibility before something has happened referring to a duty or task to care for certain state-of-affairs or persons. One is expected to act in such a way that undesired consequences are avoided and positive ones are realized. Positive attitudes or character traits (called “virtues” by philosophers) are required

Ideals: these are one way in which active responsibility can be understood. They are ideas or strivings which are particularly motivating and inspiring for the person having them and which aim at achieving an optimum or maximum. They can be personal (“to earn a lot of money” or “to satisfy a degree of curiosity”), social or moral (“to improve the world”)

Professional ideals: ideals that are closely allied to a profession or can only be aspired to by carrying out the profession. They are part of professional responsibility in as far they stay within the limits of what is morally allowed. Some professional ideals of engineers:

1. *technological enthusiasm*: the ideal of wanting to develop new technological possibilities and taking up technological challenges, i.e. “the existential pleasures of engineers”. In itself, it is not morally improper, but its inherent danger lies in the possible negative effects of technology and the relevant social constraints being easily overlooked
2. *effectiveness* (the extent to which an established goal is achieved) and *efficiency* (the ratio between the goal achieved and the effort required): the matter of whether they are morally worth pursuing depends very much on the ends for which they are employed
3. *human welfare*: contributing to or augmenting human welfare. From a moral point of view, this is hardly contestable and this ideal has another status than those at points 1 and 2. On the other hand, this ideal confirms that the professional practice of engineers is never morally neutral and the engineers do more than merely develop neutral means for the goals of others

Engineers vs. Managers

Engineers are often salaried employees and they are usually hierarchically below managers. This can lead to situations of conflict because engineers have, on the one hand, a responsibility to the company in which they work and, on the other hand, a professional responsibility as engineers, for example for human welfare. Here are three possible models

1. **Separatism:** the notion that scientists and engineers should apply the technical inputs, but appropriate management and political organs should make the value decisions. A good representation of separatism is the **tripartite model** where three separate segments are distinguished: politicians/managers, engineers and users. Engineers can only be held responsible for the design of products, i.e. the engineering choices, and not for social consequences or concerns. The dangerous side is that engineers can become “**hired guns**”: someone who is willing to carry out any task or assignment, from his employer, without moral scruples
2. **Technocracy:** government by experts, i.e. engineers take over the role of managers and politicians and become technocrats doing what they consider the best for companies and society based on technological insight. A first problem is that it is not exactly clear what unique expertise engineers possess that permits them to legitimately lay claim to the role of technocrats. A second objection to technocracy is that it is undemocratic and paternalistic (it makes moral decisions for others on the assumption that one knows better what is good for them than those others themselves). So, moral autonomy, which is considered an important moral value consisting in the ability of people to decide for themselves what is good and right, is denied
3. **Whistle-blowing:** the disclosure of certain abuses in a company, by an employee of its, without the consent of the employee’s superiors and in order to remedy these abuses and/or to warn the public about these abuses. First, it usually forces people to make big sacrifices or to pay huge prices and one may question if this is legitimate. Second, its effectiveness is often limited because, as soon as the whistle is blown, the communication between managers and professionals has inevitably been disrupted. It would much more effective if, at an earlier stage, the concerns of the professional were to be addressed, but in a more constructive way. This demands a role model in which the engineer, as professional, is not necessarily opposed to the manager. It means that engineers have to be able to recognize moral questions in their professional practice and discuss them in a constructive way with their parties

The social context of technological development

Usually, there are many **actors** (any person or group that can make a decision how to act and that can act on that decision) influencing the direction taken by technological development and the relevant social consequences:

- typical actors, each having certain (sometimes conflicting) **interests** (things actors strive for because they are beneficial or advantageous for them), are **developers** and **producers** of technology, **users** (people who use a technology and who may formulate certain wishes or requirements for a technology), **regulators** (organizations who formulate rules or regulations that engineering products have to meet concerning, for example, health and safety or fair competition), **professional associations**, **trade unions**, **educational institutes**, ...
- other notable actors are the **stakeholders**: they have an interest in the development of a technology, but they cannot necessarily influence the direction of technological development. They are important from a moral point of view: even if powerless, morality and ethics require they should somehow taken into account

Technological development is not only restrained by the large number of (conflicting) actors, but also because it is an **unpredictable process**:

- such an unpredictability is today dealt with the discipline of **Technological Assessment (TA)** (systematic method for exploring future technology developments and assessing their potential societal consequences)
- but the **Collingridge Dilemma** appears: there is a double-bind problem to control the direction of technological development. On the one hand, it is often not possible to predict the consequences of new technologies already at the early phases of technological development. On the other hand, once the (negative) consequences materialize, it has often become very difficult to change the direction of technological development
- one of the best approaches developed to overcome the dilemma is the **Constructive Technological Assessment**: TA-like efforts are to be carried out parallel to the process of technological development and are fed back to the development and design process, which is then broadened in terms of both involved actors (including stakeholders) and interests, considerations, values

2. Codes of Conduct

Introduction

Codes of Conduct: a code in which organizations (like companies or professional associations) lay down guidelines for responsible behavior of their members

They are often intended as an addition to the requirements of the law

The main adopted concepts are based on ethics for engineers, assuming many points are very similar for and applicable to NDT personnel and activities, as well



Professional code: code of conduct that is formulated by a professional association



Corporate code: code of conduct that is formulated by a company

Introduction

Depending on the exact objectives of a Code of Conduct, a distinction can be made between three types of Codes of Conduct:

Aspirational code: a code that expresses the moral values of a profession or company. Particularly, it expresses, to the outside world, the kind of values the profession or company is committed to

Advisory code: a code of conduct that has the objective to help individual professionals or employees to exercise moral judgments in concrete situations

Disciplinary code: a code that has the objective to achieve that the behavior of all professionals or employees meets certain values and norms

Most professional codes for engineers are advisory, while corporate codes are more often disciplinary

The formulation of codes of conduct is only one of the activities that professional associations and companies can undertake to stimulate responsible behavior by their members (others: training sessions on moral dilemmas, discussion groups, ...)

Professional codes

What is a Profession?

A **profession** is an occupation with specific characteristics. There is no agreement on what characteristics are exactly required to call an occupation a profession. The following characteristics are often mentioned (see, for example, Layton, 1971; Noble, 1977; Disco, 1990):

- 1 The use of specialized knowledge and skills requiring a long period of study.
- 2 A monopoly on the carrying out of the occupation: not everybody can call himself an engineer or do engineering work.
- 3 The assessment of whether the professional work is carried out in a competent way is done, and can only be done, by colleague professionals. They are the only ones who possess the knowledge and skills to apply the right standards of judgment.

Some authors have added two further characteristics (for example, Davis, 1998; Harris, Pritchard, and Rabins, 2005):

- 4 A profession provides society with products, services or values that are useful or worthwhile for society, and is characterized by an ideal of serving society.
- 5 Ethical standards, derived from or relating to the society-serving ideal of the profession, regulate the daily practice of professional work.

These authors view professional codes as an expression of the service ideal to society and the ethical standards that regulate the profession. Authors who do not include these two additional aspects in the definition of a profession are often more skeptical about the purpose of professional codes. They stress that professions may be self-serving and that codes of conduct might primarily be a means to acquire status and other privileges.

Profession Often mentioned characteristics of a profession include:
1) use of specialized knowledge and skills;
2) a monopoly on the carrying out of the occupation; 3) assessment only possible by peers. In addition the following two requirements are also sometimes mentioned: 4) service orientation to society; and 5) ethical standards.

Most modern professional codes relate to three domains:

- 1) conducting a profession with integrity, honesty and in a competent way (this is the traditional core of all professional codes)

Integrity: living by one's own (moral) values, norms and commitments

Honesty: telling what one has good reasons to believe to be true and disclosing all relevant information

Competent way: practitioner must be competent and the professional practice must be conducted skillfully (well educated, up to date, take only work in field of competence, ...)

Profession conducted in an honest, faithful and truthful way (facts not manipulated, agreements honored, sometimes independent and impartial practice, ...)



Conflict of interest: the situation in which one has an interest (personal or professional) that, when pursued, can conflict with meeting one's professional obligations to an employer or to (other) clients. Conflict of interest does not necessarily lead to immoral behavior, but it is better to avoid it because it can corrupt professional judgement and diminish trustworthiness. If it is unavoidable, it should be disclosed

Professional codes



- 2) obligations towards employers and clients: professionals should serve the interests of their clients and employers and must keep secret the confidential information passed on by clients and employers
- 3) responsibility towards the public and society: this, frequently, means safety, health, environment, sustainable development, welfare of the public ... In some cases, professionals must inform the public about the aspects of the technology in which they are involved and that are relevant to the public (for example, risks and hazards)

Some examples

Engineers shall perform services only in the areas of their competence. (NSPE Code of conduct)

Engineers shall issue public statements only in an objective and truthful manner. (NSPE Code of conduct)

Engineers shall not be influenced in their professional duties by conflicting interests. (NSPE Code of conduct)

Engineers shall maintain their relevant competences at the necessary level and only undertake tasks for which they are competent. (FEANI)

Engineers shall hold paramount the safety, health, and welfare of the public. (NSPE Code of conduct)

Engineers shall at all times strive to serve the public interest. (NSPE Code of conduct)

Engineers are encouraged to adhere to the principles of sustainable development in order to protect the environment for future generations. (NSPE Code of conduct)

Engineers shall carry out their tasks so as to prevent avoidable danger to health and safety, and prevent avoidable adverse impact on the environment. (FEANI)

Engineers shall act for each employer or client as faithful agents or trustees. (NSPE Code of conduct)

Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve. (NSPE Code of conduct)

Engineers shall provide impartial analysis and judgement to employer or clients, avoid conflicts of interest, and observe proper duties of confidentiality. (FEANI)

Corporate codes

Corporate code: voluntary commitment made by individual companies or associations of companies setting certain values, standards and principles for the conduct of corporations. They are usually more recent than professional codes and are based on the assumption that companies have a Corporate Social Responsibility. Actually, such an assumption has been contested by several authors who maintain that the responsibility of a company is limited to making profit within the limits of the law

Corporate Social Responsibility: the responsibility of companies towards stakeholders and to society at large that extends beyond meeting the law and serving shareholders' interests

Unfavorable

1. money spent by a corporation on social responsibility is ultimately the money of the shareholders and this expenditure conflicts with their goal to maximize profits
2. corporations are not democratically elected: they enforce their own particular view upon others about what is morally allowable or desirable without any democratic legitimation
3. If any limits on corporate behavior are desirable, they have to be formulated by the government, not by companies

Favorable

1. corporate responsibility initiatives not necessarily have a negative impact, they can have an extremely positive impact
2. the thought that “ethics is a luxury we can’t afford” is being replaced by “ethics pays”
3. laws are not always adequate or effective in preventing immoral behavior
4. laws also tend to lag behind technological development and companies might be in a better position to foretell moral issues raised by new technologies than the government. Hence, they have a responsibility that extends beyond what the law requires

Corporate codes

- 1) **mission statement:** concisely formulates the strategic objectives of the company and answers the question what the organization stands for
- 2) **core values:** express the qualities that a company considers desirable and which ground business conduct and outcomes. They imply an appeal to the attitude of employees, but do not contain detailed rules of conduct (teamwork, responsibility, open communication, creativity, customer orientation, flexibility, efficiency, professionalism, loyalty, ...)
- 3) **responsibility to stakeholders:** stakeholders might be consumers (supply of qualitatively good products and services, enhancing the health and safety, ...), employees (encouraging personal development, respect and equal opportunity, ...), investors, society (observing the law, good citizen, contributing to society, enhancing the quality of life, respecting human rights, ...), the environment (sustainability, ...), competitors and suppliers. There are **stakeholder principles**, as well: principles that guide the relationship between a company and its stakeholders (transparency, honesty/truth, fairness/impartiality)
- 4) **Norms and rules:** guidelines for employees how to act in specific situations (acceptance of gifts, fraud, conflict of interest, confidentiality, corruption, bribery, discrimination, respect, sexual harassment, ...)

Possibilities and limitations

Codes of conduct are a useful point of departure for discussions on responsibilities, but a number of objections against them have been leveled. In judging these objections, one should keep in mind that codes of conduct may have different objectives (aspirational, advisory, disciplinary). None of the objections is strong or convincing enough to conclude that codes of conduct as such are undesirable: much depends on the actual formulation and implementation of the code. The most common objections are:

- 1) codes of conduct are a form of self-regulation and, sometimes, they are primarily formulated for reasons of **self-interest** (a good image to the outside world, to avoid government regulations, to silence dissident voices, ...). The self-interest is not necessarily objectionable as long as the content is ethical and serious attempts are made to live by the code. One way to ensure this is to include a range of stakeholders in the code to avoid it becomes one-sided. A code serving only the interests of a company or profession may amount on **window-dressing** (presenting a favorable impression that is not based on the actual facts)
- 2) codes of conduct are often **vague** and are potentially **contradictory** because there is a need for interpretation for their application to concrete situations. One relevant point is loyalty: i) **uncritical loyalty**: placing the interest of the employer, as the employer defines those interests, above any other considerations; ii) **critical loyalty**: giving due regard to the interest of the employer, insofar as this is possible within the constraints of the employee's personal and professional ethics

Possibilities and limitations

- 3) ethics **cannot be codified**. This objection is the mirror of the previous one and it is based on the same principle that ethics remains a matter of judgement. Moreover, codes of conduct are not morally binding because they express moral responsibilities that are grounded otherwise. Finally, a third argument against codes of conduct is that they presuppose that morality can be expressed in a set of universal moral rules, while engineering is too diverse, both in terms of disciplines and activities, for one code to apply. All of these arguments are merely directed against disciplinary codes, because they are strictly prescriptive and are enforced
- 4) codes of conduct **cannot be lived by**: codes sometimes contain provisions that are very difficult or impossible to follow in practice, especially considering whistle-blowing (for example, information on safety/health to the public vs. confidentiality duties). There are a number of initiatives that can be undertaken to improve the degree to which codes can be lived on
- 5) codes of conduct are **not enforced**:
 - Professional codes: generally, they do not have legal status, membership to professional societies is often voluntary and the most severe sanction is just to lose the membership. There are some notable exceptions
 - Corporate codes: they also usually lack a legal status, but enforcement/monitoring of the code is more common and easier to accomplish because companies have more possibility to stimulate or discourage the behaviors of employees. There is also the possibility of (voluntary) external auditing (assessing of a company in terms of its code of conduct by an external organization), which helps to stop the code being interpreted and enforced at will and increases the credibility/image of a company

Codes of conduct in an international context

Global codes for **multinationals**: today, such codes tend to focus on the impact of multinational companies in the areas of social conditions and the environment

Global codes of conduct (a code of conduct that is believed to apply worldwide) have been developed: these codes can be used by multinational companies as a guide to develop and/or revise their codes of conduct, especially related to investments in developing countries. Three major examples are: the Caux Round Table principles, the Organization of Economic Cooperation and Development guidelines for multinational companies and the United Nations Global Compact. All of them are voluntary and not binding on companies

United Nations Global Compact Principles

Human Rights

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: make sure that they are not complicit in human rights abuses.

Labour Standards

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labour;
- Principle 5: the effective abolition of child labour; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and

- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Codes of conduct in an international context

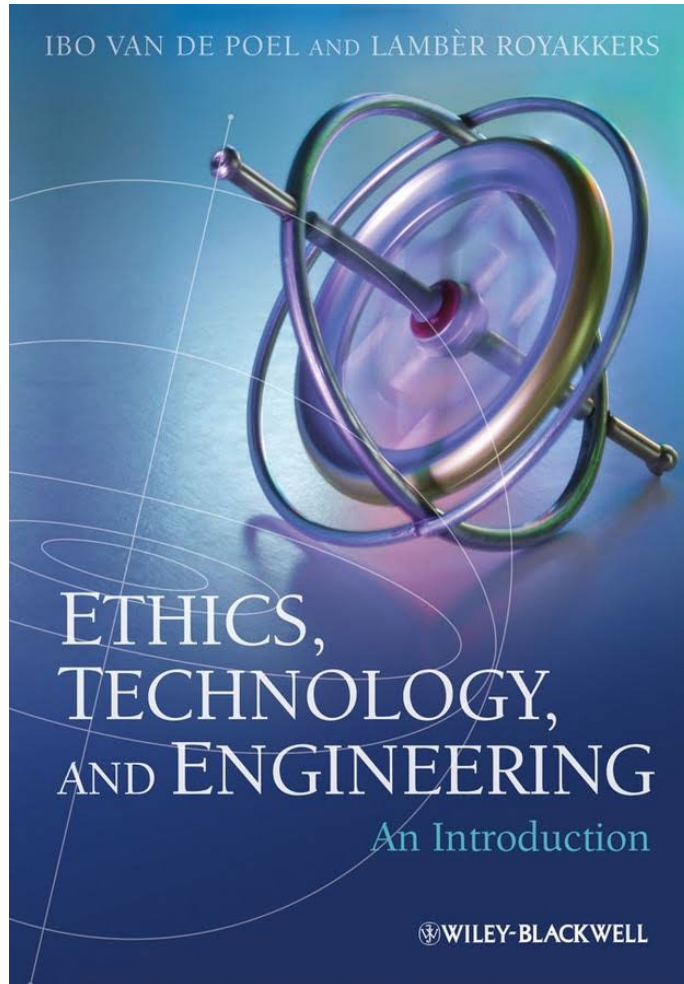
Global codes for **engineers**: the main challenge is to create consistency in spite of cultural differences. For example, **professional autonomy** (the ideal that individual professionals achieve themselves moral conclusions by reasoning clearly and carefully), which is the fundamental notion for US codes, cannot serve as an uncontested universal foundational assumption for building a global code for engineers because, in other nations, it is not as valued as in the US

Some principles have been proposed based on the nature of engineering activity and the universal use of reason in engineering: the universal foundational assumption is that all engineers, independent of their cultural background, must accept the premise that the use of reason is a valid decision-making instrument

Ethical Principles for Engineers in a Global Environment

- The Principle of Public Safety: Engineers should endeavor, based on their expertise, to keep members of the public safe from serious negative physical consequences resulting from their development and implementation of technology.
- The Principle of Human Rights: Engineers should endeavor to ensure that fundamental rights of human beings will not be negatively impacted as a result of their work with technology.
- The Principle of Environment and Animal Preservation: Engineers should endeavor to avoid damage to the animal kingdom and the natural environment which would result in serious negative consequences, including long-term ones, to human life.
- The Principle of Engineering Competence: Engineers should endeavor to engage only in engineering activities which they are competent to carry out.
- The Principle of Scientifically Founded Judgment: Engineers should endeavor to base their engineering decisions on scientific principles and mathematical analysis, and seek to avoid influence of extraneous factors.
- The Principle of Openness and Honesty: Engineers should endeavor to keep the public informed of their decisions which have the potential to seriously affect the public, and to be truthful and complete in their disclosures. (Luegenbiehl, 2010)

Most of the reported concepts are taken from:



Actually, this is specifically focused on professional engineering, but it can be easily transferred to NDT (technical) activities

EF European Federation for
Non-Destructive Testing
NDT