

ETHICAL DILEMMAS

The Royal Academy of Engineering will soon publish a case study guide titled *Engineering Ethics in Practice*, aimed at encouraging engineers to think about ethics. Richard Maudslay FEng and Dr Natasha McCarthy, Head of Policy at the Academy, summarise the purpose and content of the new publication.

Engineers need to think ethically. Working in a profession that affects the lives of individuals and communities brings with its significant responsibility to act in an ethical and transparent manner. Engineering practice can pose difficult questions, from balancing environmental harms against society's energy needs, to assessing whether current social and political priorities are a good basis for developing systems that will affect lives for decades. The ethical engineer must think through moral dilemmas and arrive at practical and justifiable decisions.

ETHICS IN PRACTICE

To develop the guide, 70 engineers were surveyed on whether they think ethics are crucial to their working lives and what support they need in addressing ethical matters. Nearly all agreed that ethical issues arise in the course of their work, the most common topics involving the health and safety of workers and the public; appropriate handling of intellectual property; security of information; and dealing with conflicts of interest.

One respondent described the advanced train protection (ATP) on Britain's railways as an ethical dilemma, because while it could

save lives, more lives could be saved by spending the funds on road safety. Ethical dilemmas such as these affect the work of engineers, and it is engineers at senior levels who must grapple with them alongside government and wider society.

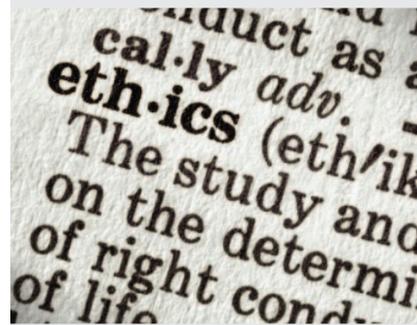
Dilemmas arise frequently, but what is it that could prevent engineers from doing what is right? Almost half said that cutting costs, timescales and meeting clients' demands make it difficult to behave ethically all the time. A similar number said that competing for contracts sometimes makes ethical practice difficult and working in countries where values and accepted practices differ from 'home' standards causes problems, as do payment or bonus schemes that encourage managers to 'cut corners'.

FROM CODES TO PRINCIPLES

Many large engineering companies have codes of conduct that are intended to support engineers in dealing with external pressures and such codes can be of significant value when setting down the standards a company has determined for itself. Professional institutions also have codes governing their members. In order to create clarity for practising engineers,

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Q. You are a software engineer asked to give an opinion in court about the level of security offered by a company's data protection procedures. You suspect the system may not be completely secure, but have not had the opportunity to inspect it as thoroughly as you would like. Would you accept the request to appear as an expert witness? If so, how would you present your testimony?



Q. You are an engineer working for a company that has an opportunity to tender for some work on the construction of a new building. However, neither you, nor any of your colleagues is familiar with one of the materials that the client wants to use in the project. Your manager suggests submitting a tender for the work without saying anything about the company's lack of experience with the material, and in the meantime you can take the opportunity to learn what you can. Would you agree with tendering for the work?

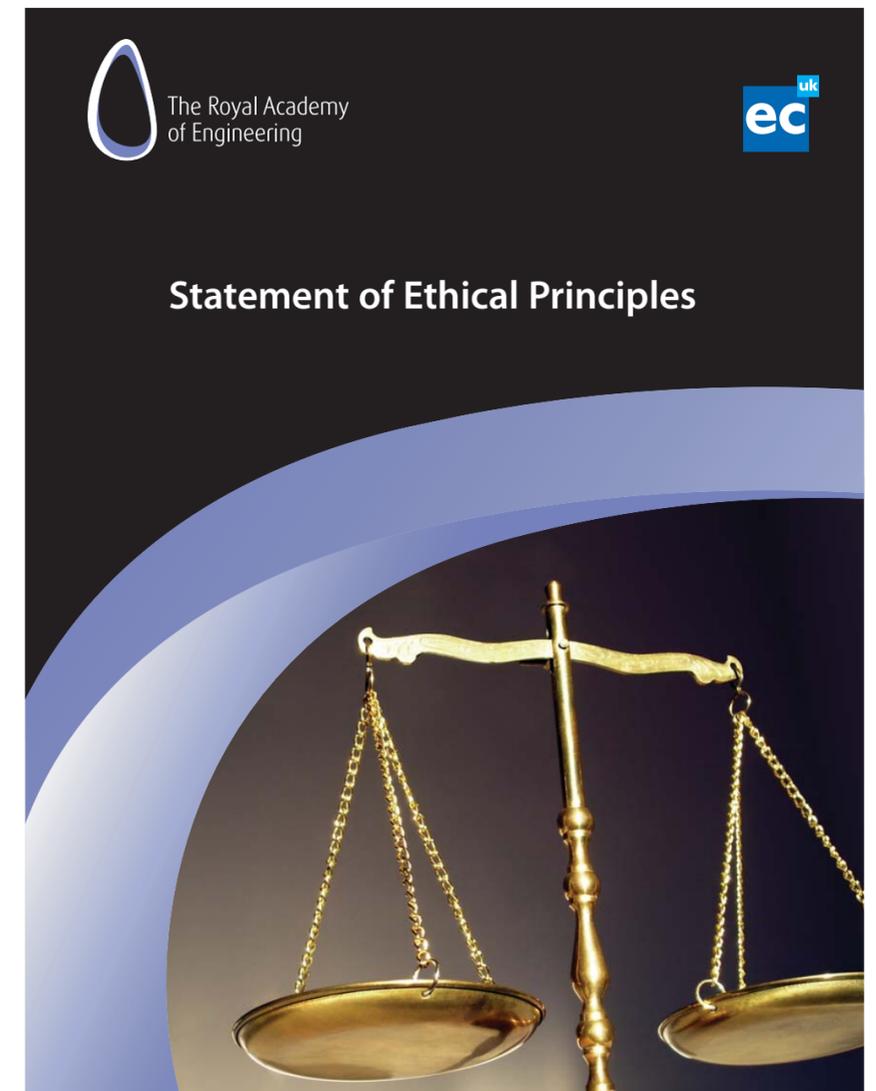
The Royal Academy of Engineering and the Engineering Council established its statement of ethical principles, revised in 2007. The principles aimed to unify and underpin the separate codes of different institutions without replacing the necessary details that set out the regulations of each body. (See www.raeng.org.uk/ethics)

How does the engineer relate abstract principles to concrete situations? One of the best ways to develop ethical thinking by means of example. Engineers learn from experience, making case studies a key way to introduce ethical concepts to engineers to them. The case studies in the guide are intended as exercises that address through real-life ethical dilemmas. They help to develop the thinking skills needed to deal with the real situations engineers at all levels routinely face.

APPLYING THE LESSONS

In the survey, the majority of participants felt the professional engineering bodies could do more to promote ethics. It was thought this could be done by encouraging universities to include ethics in undergraduate degree schemes by promoting awareness through case studies, and providing guidance materials.

The guide could be used in universities to help engineering students and help them apply ethical thinking to the technical subjects they study. There is, however, a strong sense that promoting awareness through such case studies is needed at all levels of engineering education and practice. A prime aim of the guide is to provide tools for engineering companies to encourage ethical engagement among employees. The case studies will help engineers to think, and therefore to act, ethically.



Download the statement at www.raeng.org.uk/ethics