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UNIVERSITY OF WISCONSIN-MADISON

Resources for  
Thinking through Complex Ethical Dilemmas  
In the Engineering Profession

Workshops Designed by the Department of Engineering Professional Development  
College of Engineering, University of Wisconsin, Madison

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**Overview of our Workshop Materials.** The resources provided in this handout are explained and used during our workshop. Below is a brief summary of key concepts and the relationships of the different materials found herein:

**Fundamental assumptions.** By “professional engineering ethics” we mean the obligations and duties that are particular to those practicing the profession of engineering. The education required for someone to become a practicing engineer comes with certain obligations: ordinary citizens depend upon engineers to use their specialized role and knowledge to the best of their ability to ensure the safety of those who use their technologies or designs. Reasonable people may question whether engineers who are not licensed Professional Engineers have an obligation to uphold a code of ethics for their profession. Our perspective is that more functional organizations and safer technologies result when ethical obligations are assumed to extend to all engineers within an organization, not just to those with a PE license. Engineers, by dint of their technical experience, have a special role within their organizations that demands responsible choices.

**Engineering Codes of Ethics.** We typically point to the many available online resources for several professional codes of ethics, including those of the National Society of Professional Engineers (NSPE), the American Society of Civil Engineers (ASCE), and the Institute of Electrical and Electronics Engineers (IEEE). The NSPE provides a comprehensive code that can be useful to engineers of all disciplines. Two points are helpful to keep in mind when using any engineering code of ethics:

1. Codes are useful for identifying basic ethical obligations for engineers.
2. For truly complex ethical dilemmas involving ambiguities and uncertainties, codes are necessary but not entirely sufficient -- because they do not offer clear and universally accepted boundaries on such concepts as safety, welfare, conflict of interest, etc., and because they do not cover all the specific contingencies of any particular case.

**An ethical decision-making system for engineers.** A key feature of our approach to ethical behavior is an emphasis on going “beyond the gut” and using what Daniel Kahneman calls “System Two” thinking: when facing an ethical problem, there are several steps that can help one methodically work through a variety of options; those options should then be analyzed using questions based on moral theories. Subjecting each option to moral scrutiny can help guide decision-making. There is no particular magic to our ethical decision-making system for engineers: it is built on models used by other applied ethicists, including most notably Michael Davis, a senior fellow at the Center for the Study of Ethics in the Professions, Illinois Institute of Technology.

**Concepts taken from studies in behavioral and cognitive science.** Asking these further questions from behavioral and cognitive science can help us become more aware of the pressures and obstacles that may be distorting our decision-making abilities.

**Communication strategies: communicating the engineering perspective.** These guidelines can help once an engineer has thought carefully through a dilemma, because an important next

step is to discuss the decision with others. Engineers may play a critical role in influencing others within their organization who perhaps do not understand the engineering or the science. In fact, in complex organizations, sometimes those outside of engineering can be dealing with serious economic and political pressures that may motivate them to advocate for problematic decisions. Effective communication of both the engineering and the ethics behind a decision can be crucial.

**References.** Our work builds on research and analyses done by ethicists, behavioral scientists, philosophers, and experienced engineers.