Engineers as Responsible Experimenters

ENG101 Engineering Professionalism

Dr. Zaid Ahmad, PhD, MIEEE
Advisor, IEEE CUI Lahore
COMSATS University Islamabad, Lahore Campus

1

Engineers as Experimenters

Engineering are not the sole experimenters

Responsibilities shared with management, public, and others

Help clients and public by monitoring projects, identifying risks, and providing the necessary information to make reasonable decisions

2

Conscientiousness

Primary obligation to protect safety of human subjects, and respect their rights of consent

Open eyes, open ears, and open minds

Best balance between sensitivity to all moral values and willingness for continuous development

Voluntary and informed consent

3

Comprehensive Perspective

A constant awareness of the experimental nature of any project, imaginative forecasting of its possible side effects, and a reasonable effort to monitor them

Acquiring and assessment of all available information to accomplish moral obligations

Awareness to wider implications of a work

Increasing specializations and division of labour

Consequences of one's specialized activities in a project having a social impact, requires extra effort on the part of engineers

4

Moral Autonomy

Autonomous participation in one's work: sophisticated training, own moral conduct and principles of action

Critical reflection rather than passive adoption

Exercising the sophisticated training that forms the core of their identity as a professional

Critical and questioning attitude about the adequacy of current economic and safety standards

Technical and non-technical Excellence:
- Sensitivity to risk: safe and unsafe risks
- Tight coupling between complex technical systems: unexpected consequences

Attitude of management:
- Near-term profitability vs. consistent quality and long-term retention of customers
- Tight schedules

Role of professional societies: power of societies

5

Accountability

Willingness to submit actions to moral scrutiny

Often accountable: Narrowed sense of accountability on part of engineers, blameworthy

Open and responsive to assessment of others

Cogent reasons for conduct

Causal influence and moral accountability
- Fragmentation of work
- Diffusion of accountability in large organizations, responsibility dilemma, the problem of many hands
- Pressures to move to new projects, the responsibility of meetings schedules and deadlines
- Problem of spreading wrong idea or practise

Accountability vs. blameworthiness

Causal responsibility vs. moral responsibility

6

References

1. Zhu, Q., Martin, M. W., & Schinzinger, R. (2022). *Ethics in engineering*.

7