

Social and Ethical Aspects in Engineering

IME-251

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Week10 Agenda

- Engineering as Social Experimentation
 - Socially conscious engineering; Engineering, Ecology and Economics

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Engineers as Responsible Experimenters

- Conscientiousness
- Comprehensive Perspective
- Moral Autonomy
- Accountability

- A Balanced Outlook on Law
- Industrial Standards

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Engineers as Responsible Experimenters

- Conscientiousness
 - A primary obligation to protect the safety of human subjects and respect their right of consent.
 - Commitment to sensitivity to full range of moral values.
 - Commitment to responsibilities relevant to a given situation.
 - Willingness to develop the skill and expend the efforts needed to reach a reasonable balance among the considerations at hand.
 - Conscientiousness means consciousness : Open eyes, open ears and an open mind.
 - Conscientiousness will never be disregarded in the quest of new knowledge, the rush for profits, a narrow adherence to rules, or a concern over benefits that harms the few.

Important Words:

- Bureaucracy
- Prudent
- Aspiration
- Conceive
- Paramount
- Adherence
- Paternalistically

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Engineers as Responsible Experimenters

- 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.
- Conscientiousness is blind without relevant factual information.
- Don't lose perspective by just lack of moral concern or by putting burden on someone else.
- Preventive Technologies

Important Words:

- Potent
- Hallucinogen
- Blur
- Obsolescence
- Hinder
- Acquire
- Imaginatively
- Foresee
- Anticipate

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Engineers as Responsible Experimenters

- Moral Autonomy

- Autonomous, personal involvement in all steps of a project.
- Kent's authenticity: Moral beliefs and attitudes should be held on the basis of critical reflection rather than passive adoption of the particular conventions of one's society or profession.
- Tendency and Sense of autonomous participation in one's work.
- It would be in long term interest of big firms that their management play a decisive role in moral autonomy of firm's engineers.

Important Words:

- Forfeited
- Sophisticated
- Adequacy
- Decisive
- Latitude
- Conglomerate
- Retention

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Engineers as Responsible Experimenters

- Accountability

- Accepting accountability for the results of a project.
- Stanley Milgram's experiment: an astonishing example of submission
 - Milgram explained these results by citing a strong Psychological tendency to abandon personal accountability when placed under authority.
- Fragmentation of large-scale engineering projects lessens the sense of personal accountability.
- Fragmentation of work delimit or diffuse areas of personal accountability.
- Pressure to move on a new project promotes a sense of being accountable only for meeting schedules.
- Contagion of malpractice suits currently afflicting the medical profession is carrying into engineering.

Important Words:

- Culpable
- Blameworthy
- Disposition
- Scrutiny
- Cogent
- Submit
- Ruse
- Deception
- Astounding
- Jolt
- Strapped
- Writhing
- Apparent
- Agony
- Ascribe
- Legitimate
- Divest

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Engineers as Responsible Experimenters

- A Balanced Outlook on Law

- Updating the laws and regulations
- Danger of overburdening the rules and the regulators

- Industrial Standards

- ISO Standards

Important Words:

- Schism
- Wary
- Deregulate
- Ought to
- Compliance
- Void

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Engineers as Responsible Experimenters

- Challenger: As a social Experiment
→ Do it Yourself

Q & A