

Engineers & Society

CHAPTER 6 (Part 2) ENGINEERS AND RESEARCH

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- * Ethics in R&D
- * Government and Private Research grant (KPT, MOSTI, SIRIM, TNB)
- * Copyright, Patented, Innovations, Intellectual Property etc.

ETHICS IN RESEARCH AND EXPERIMENTATION

Definition

- * The study of the characteristics of morals
- * Deals with the moral choices that are made by each person in or her relationships with other persons

e.g.

Engineering ethics is a body of philosophy indicating the ways that engineers should conduct themselves in their professional capacity

Codes of Ethics of Professional Engineering Societies

- * The Institute of Electrical and Electrical Engineers
- * National Society of Professional Engineers (NSPE)
- * American Society of Mechanical Engineers

Ethics in Research and Experimentation

2 Major Issues :

- i. Honesty in approaching the research problem
- ii. Honesty in reporting the result

Honesty in approaching the research problem

1. State of mind essential to successfully performing research
2. Avoid preconceived notions what the result will be
3. Be open to changing the hypothesis when such action is warranted by the evidence
4. Ensuring that an objective frame of mind is maintained (see Pathological Science)

Honesty in Reporting the Result

- * Results of the experiment must not be over stated, but rather an accurate assessment and interpretation of the data must be given
- * Do not be tempted to “massage” the result to achieve the desired outcome for reasons such as:
 - i) Rewards for overstating research results for tenure at universities
 - ii) Quest for fame or desire to be first with the results, hence falsification of data.
 - iii) Pressure to get new product into the market leads to “fudging” of data

However note the difference between intentional deception and results or interpretations that are simply incorrect i.e. great care must be Taken Before result are presented.

Other Issues

- * Important to ensure that proper credit is given to everyone who participated in a research project – people involved discussion, guidance, construction of experimental apparatus, or help with performing experiments or interpreting data.

RESEARCH GRANTS

Types:

1. University
2. KPT : FRGS, LRGS, etc
3. MOSTI
4. Industries
5. Government agencies

References

1. Leedy P. D. and Ormrod J. E., Practical Research: Planning and Design, 7th Edition. 2001.
2. <http://www.mosti.gov.my/>



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