SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
Accredited by NAAC-UGC with 'A' Grade
Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai

Department of AI&DS

Course Name – 19GE701 PROFESSIONAL ETHICS
IV Year / VII Semester

Unit 2 – Engineering as social experimentation
Engineers as responsible experimenters

Introduction

Definition: What it means to be a responsible experimenter.

Importance: Why responsibility matters in engineering experiments.

The Role of Engineers in Experiments

Responsibilities:

Overview of responsibilities engineers have when conducting experiments.

Examples:

Types of experiments engineers typically conduct (e.g., materials testing, simulations, prototype development).

Ethical Considerations

Informed Consent:

Ensuring that all participants (if applicable) are aware of and agree to the experiment.

Confidentiality:

Protecting sensitive information.

Avoiding Harm:

Minimizing risks to people and the environment.

Legal and Regulatory Standards

Compliance: Adhering to relevant laws and regulations (e.g., safety standards, environmental regulations).

Documentation: Importance of accurate and thorough documentation

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Best Practices for Responsible Experimentation

Planning: Careful design and planning of experiments.

Risk Assessment: Identifying and mitigating potential risks.

Peer Review: Seeking feedback and validation from colleagues.

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Case Studies

Positive Example: A case where responsible experimentation led to successful outcomes.

Negative Example: A case where lack of responsibility led to issues or failures.

Tools and Technologies

Software: Tools for simulation and modeling (e.g., MATLAB, Simulink).

Equipment: Safety and quality control equipment.

Data Management: Best practices for handling and analyzing data.

Communication and Collaboration

Teamwork: Importance of working collaboratively and communicating effectively.

Transparency: Sharing findings and methodologies with the wider community.

Future Trends

Emerging Technologies: How new technologies (e.g., AI, advanced materials) impact experimentation.

Evolving Standards: Anticipated changes in ethical and regulatory standards.

Conclusion

Summary: Recap of key points.

Call to Action: Encouraging responsible practices in engineering.