



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

**Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 16GE301 Professional Ethics

III YEAR / V SEMESTER

Unit 3– Engineering Responsibility for Safety

Topic 1: Safety and Risk





What We'll Discuss

TOPIC OUTLINE



Case Study
Concept of Safety
Examples



CASE STUDY



- Pilot Dan Gellert was flying an Eastern Airlines Lockheed L-1011, cruising at an altitude of 10,000 feet, when he inadvertently dropped his flight plan. Being on autopilot control, he casually leaned down to pick it up. In doing so, he bumped the control stick. This should not have mattered, but immediately the plane went into a steep dive, terrifying the 230 passengers. Badly shaken himself, Gellert was nevertheless able to grab the control stick and ease the plane back on course. Although much altitude had been lost, the altimeter still read 10,000 feet.



SAFETY



- How important it is to design for proper human-machine interactions whenever human safety is involved?
- We demand safe products and services, but we also realize that we may have to pay for this safety.
- One of the main duties of an engineer is to ensure the safety of the people who will be affected by the products that he designs.
- The code of ethics of the professional engineering societies make it clear that safety is of paramount importance to the engineer.



SAFETY



- What may be safe for one person may not be safe for another person.
 - Ex 1: A Power Saw in the hands of a child is unsafe, but it is safe in hand of adult.
 - Ex 2: A sick adult is more prone to ill effects from air pollution than a healthy adult.
- Absolute safety, in the senses of (a) entirely risk-free activities and products, or (b) a degree of safety that satisfies all individuals or groups under all conditions, is neither attainable nor affordable.



CONCEPT OF SAFETY

- William W. Lowrance: “*A thing is safe if its risks are judged to be acceptable*”
- Modification:
 1. we seriously underestimate the risks of something, say of using a toaster we see at a garage sale.
 2. we grossly overestimate the risks of something. For example, we irrationally think fluoride in drinking water will kill a fifth of the populace.
 3. there is the situation in which a group makes no judgment at all about whether the risks of a thing are acceptable or not—they simply do not think about it.





CONCEPTS OF SAFETY

- Modified version of Lowrance's definition: *“A thing is safe if, were its risks fully known, those risks would be judged acceptable by reasonable persons in light of their settled value principles”.*
- For example, when we say that airplane travel is safer than automobile travel, we mean that for each mile travelled it leads to fewer deaths and injuries—the risky elements that our settled values lead us to avoid.





RECALL TIME

**ASSESSMENT
TIME**



THANK YOU