

## **Famous Failures in Ethics**

1. Apollo 1 fire on launch pad in which three astronauts died.
2. Challenger space shuttle failure of O-ring pressure seals.
3. Columbia space shuttle crashed because of flyaway foam causing wing damage.
4. Chernobyl nuclear power plant explosion because of improper design.
5. Concorde plane crash in which a burst tire is suspected cause.
6. Denver airport baggage handling system in which mechanical and software problems resulted in a \$1 billion per day cost of delay.
7. Dow Corning breast implant failures (95% after twelve years) and linked to breast cancer.
8. Firestone tires for Fore Explorer SUV caused 174 deaths and resulted in a recall of 14.4 million tires.
9. Hyatt Regency hotel in Kansas City had walkway collapsed killing 114 people.
10. Kansai (Japan) International Airport is sinking 50 years ahead of schedule (cost of \$17 billion).
11. Hindenburg blimp explosion killed 35 people.
12. Two (KLM and Pan Am) 747 airplanes collided and killed 582 people.
13. Korean Air (747 airplane) flight 801 crashed because of mechanical problems killed 254 people.
14. Mars Climate Orbiter problems because one design team used English units and another design team used metric units.
15. Mohave Generating Station (Laughlin, Nevada) in which two turbine shafts were broken before the cause was determined.
16. 1965 Northeast U.S. Blackout occurred because of relay/circuit breaker problems.
17. Three Mile Island nuclear reactor (Middletown, Pennsylvania) failure because of equipment failures and human problems.
18. Titanic sinking after hitting an iceberg killing 1522 people (design problems).
19. TWA flight 800 crash killing 230 people as a result of a power system failure.
20. United DC-10 crash in Iowa killing 111 people (caused by hydraulic failure).
21. Y2K software bugs resulting in a \$300-900 billion fix.

# **Code of Ethics of Engineers**

**from The American Society of Mechanical Engineers**

## **THE FUNDAMENTAL PRINCIPLES**

Engineers uphold and advance the integrity, honor, and dignity of the Engineering profession by:

- I. using their knowledge and skill for the enhancement of human welfare;
- II. being honest and impartial, and serving with fidelity the public, their employers and clients, and
- III. striving to increase the competence and prestige of the engineering profession.

## **THE FUNDAMENTAL CANONS**

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Engineers shall perform services only in the areas of their competence.
3. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Engineers shall build their professional reputations on the merit of their services and shall not compete unfairly with others.
6. Engineers shall associate only with reputable persons or organizations.
7. Engineers shall issue public statements only in an objective and truthful manner.