Lecture 6

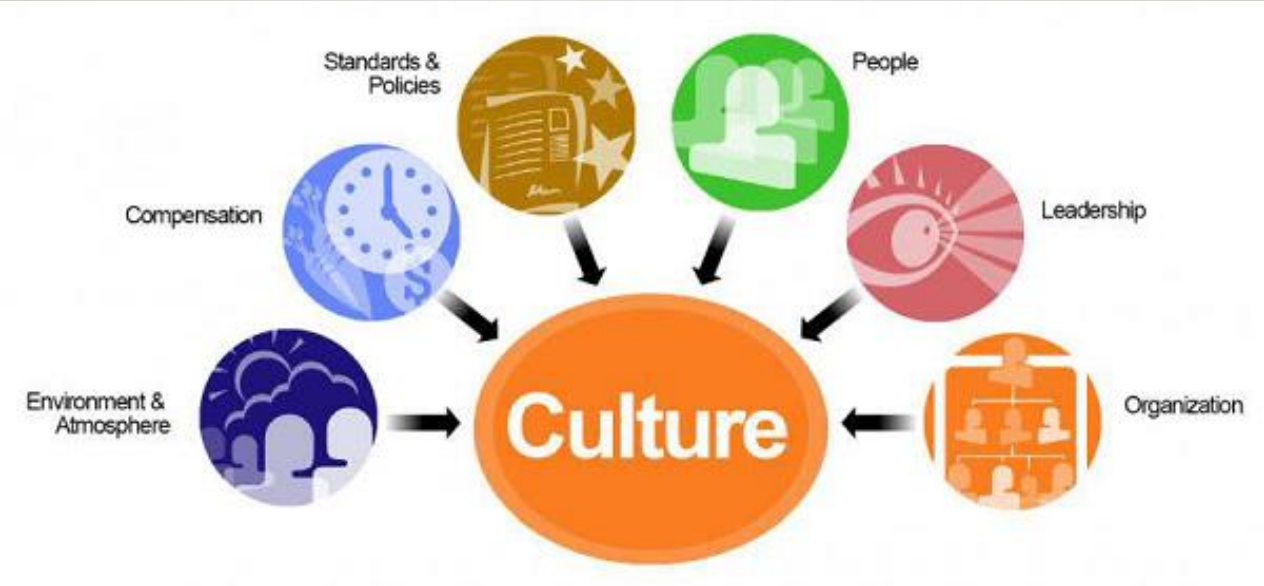
PROFESSIONALISM IN ENGINEERING

- PROFESSIONALISM AND THE 5 PRINCIPLES
- **Professionalism:** *Competence and skill expected from a professional*
- **Communication:** *Ability to communicate ideas effectively*
- **Teamwork:** *Lead and contribute to high-performing groups*
- **Critical Thinking:** *Solving complex problems*
- **Ethics:** *Tackling ethical issues in technology*
- **Humanness:** *Valuing people and creating value for people*

ENGINEERS IN ORGANIZATIONS

- Engineers do often experience a conflict between loyalty to their employer and loyalty to their profession.
- Many engineering codes, they want to be "faithful agents" of their employers.
- At the same time, as engineers they are also obligated to hold paramount the health, safety, and welfare of the public.
- Many managers are not engineers and do not have engineering expertise, so communication is often difficult.

ORGANIZATIONAL CULTURE



- Engineers must first have some understanding of the organization in which they are employed. This knowledge helps engineers to understand

  (1) how they and their managers tend to frame issues under the influence of the organization and

  (2) how one can act in the organization effectively, safely, and in a morally responsible way.

ORGANIZATIONAL CULTURE

- **Engineer-Oriented Companies:** In these firms, there is general agreement that *quality takes priority* over other considerations, except safety. In the words of one manager, "We have overdesigned our products and would rather lose money than diminish our reputation."

ORGANIZATIONAL CULTURE

- **Customer-Oriented Companies:** Decision making is similar to that of engineer-oriented firms, but with four significant differences. First, managers must focus on such business factors as timing and cost, engineers should focus on quality and safety. Second, *more emphasis is placed on business* considerations than in engineer-oriented companies. Third, Sometimes *quality can be sacrificed* to get the product out the door. Finally, communication between engineers and managers may be somewhat more difficult than in engineer-oriented firms.

ORGANIZATIONAL CULTURE

- **Finance-Oriented Companies:** These firms are more centralized and that this has important consequences. For example, engineers may receive less information for making decisions and consequently their decisions are given less weight by managers.

ORGANIZATIONAL CULTURE

- Suggestions that should make acting ethically easier and less harmful to the employee:
  - Engineers and other employees should be encouraged to report bad news.
  - Companies and their employees should adopt a position of "critical" loyalty rather than uncritical or blind loyalty. **Uncritical loyalty** to the employer is placing the interests of the employer, as the employer defines those interests, above every other consideration. **Critical loyalty** is giving due regard to the interests of the employer but only insofar as this is possible within the constraints of the employee's personal and professional ethics.
  - Employees should focus on issues rather than personalities when making criticisms and suggestions.
  - Written records should be kept of suggestions and especially of complaints.
  - Complaints should be kept as confidential as possible for the protection of both the individuals involved and the firm.
  - Explicit provision for protection from retaliation should be made, with mechanisms for complaint if an employee believes he or she has experienced retaliation.
- Next to the **fear of immediate dismissal**, probably the greatest fear of an employee who is in disagreement with a superior is that he or she will **suffer discrimination** in promotion and job assignment, even long after the controversy is resolved.
- Protection from this fear is one of the most important of employee rights, although it is one of the most difficult to provide.

FUNCTIONS OF ENGINEERS AND MANAGERS

- **Proper Engineering Decision (PED):** a decision that should be made by engineers or at least governed by professional engineering standards because it either
  - (1) involves technical matters that require engineering expertise or
  - (2) falls within the ethical standards embodied in engineering codes, especially those that require engineers to protect the health and safety of the public.
- **Proper Management Decision (PMD):** a decision that should be made by managers or at least governed by management considerations because
  - (1) it involves factors relating to the well-being of the organization, such as cost, scheduling, and marketing, and employee morale or welfare; and
  - (2) the decision does not force engineers (or other professionals) to make unacceptable compromises with their own technical or ethical standards.

RESPONSIBILITY AND ACCOUNTABILITY

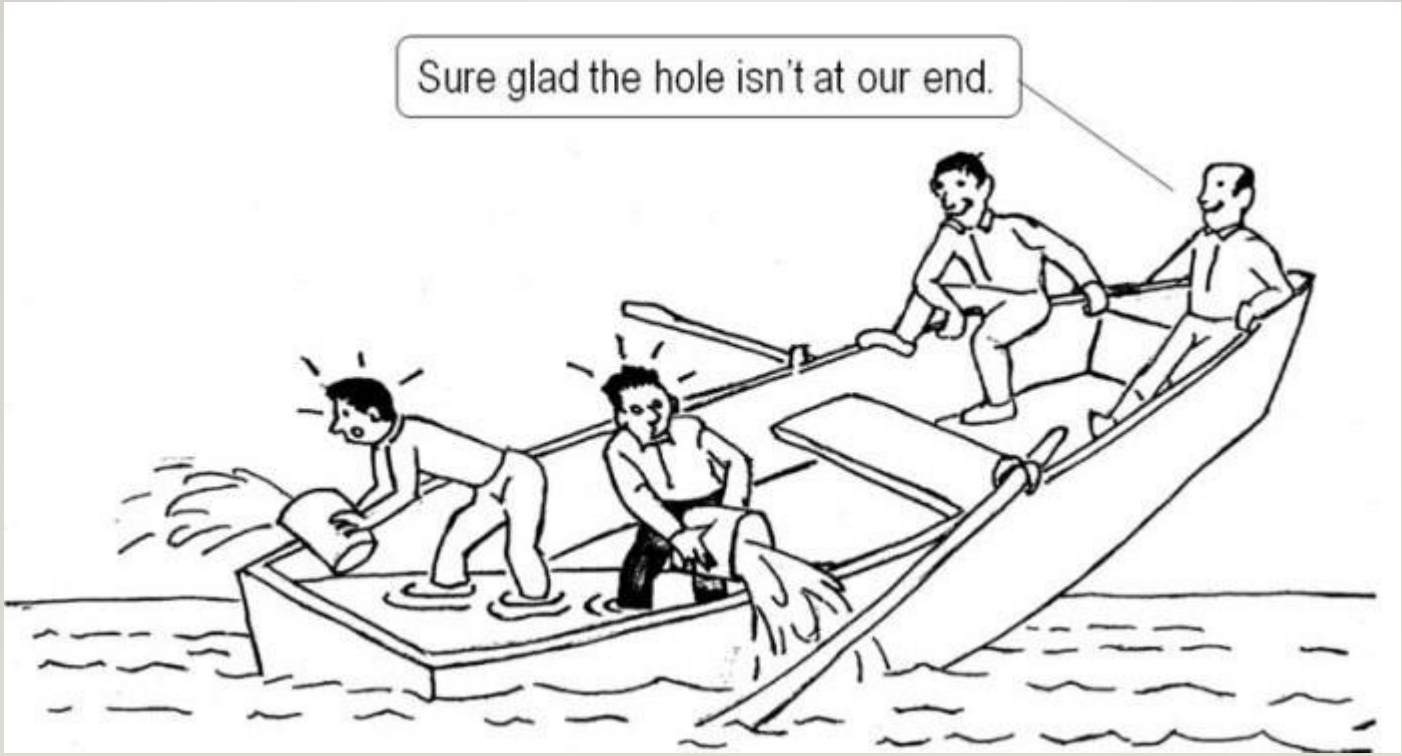
- **Often the responsible implies accountable.**
- **Responsibility** can be delegated. Those who take responsibility by authority, agreement, delegation or empowerment must have the capacity, ability and resources to fulfil the responsibility.
- **Accountability** means one can be held to account for one's actions, to explain, justify and present cogent reasons for one's conduct when required by a proceeding.
- In contrast, accountability systems outline job responsibilities on individual basis, specifying performance indicators and criteria. They declare how the job is performed, what is to be accounted for and what counts in appraising performance.

RESPONSIBILITY AND ACCOUNTABILITY

Basis of distinction	Responsibility	Accountability
Meaning	It is an obligation by an employee to perform certain duties or to make sure that they are completed	It is the obligation created by accepting duties and responsibilities from higher management.
NATURE	It flows downwards	It flows upwards
DELEGATION	It can be delegated but not entirely	It cannot be delegated.

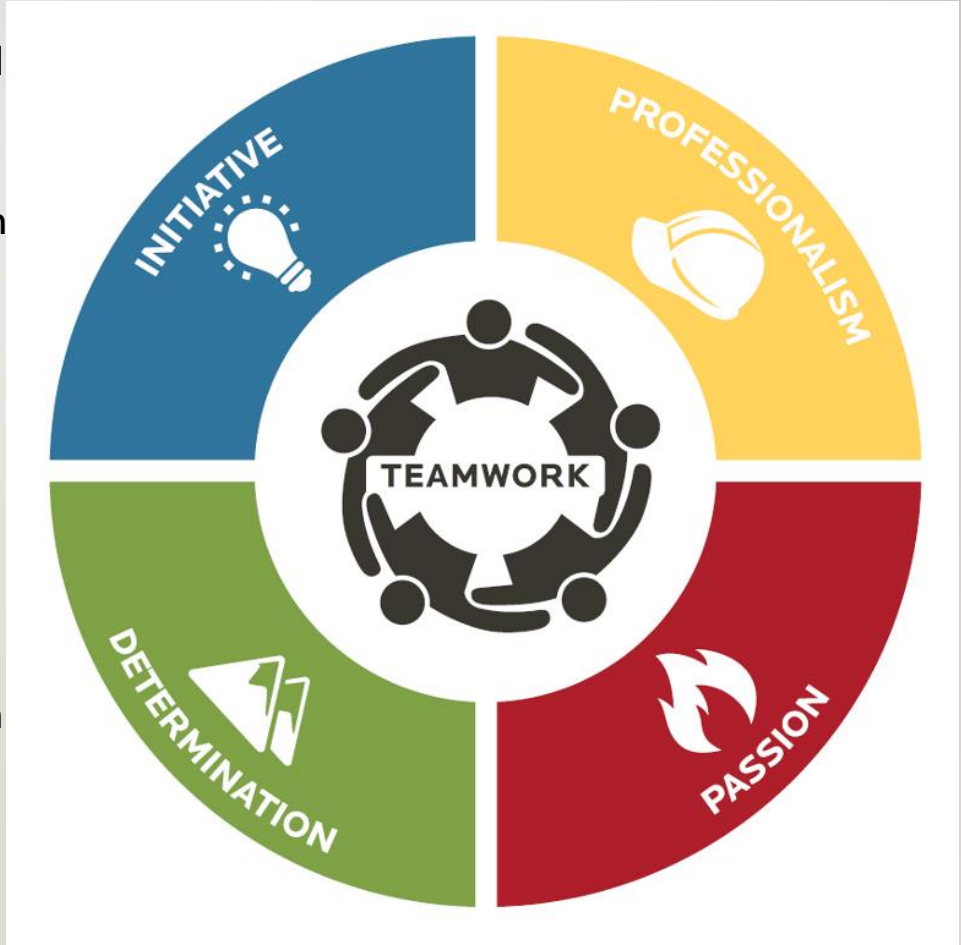
RESPONSIBILITY AND ACCOUNTABILITY

- In engineering ethics, responsibility embodies both the moral and professional sense of obligation.



TEAMWORK

- **Ethical corporate climate:**
- Professionalism:
  - Responsibilities to constituencies affirmed
  - Ethical values in full complexity are acknowledged
  - Procedures for conflict resolution in team are important
- Initiative:
  - Each team should be encouraged to take initiatives and afterword their efforts should be appreciated
  - Management sets moral tone in words, policies, and personal examples.
- Determination
  - Requires honest determination from each team-members
- Passion
  - The true fuel for teamwork to do well is passion



CONFIDENTIALITY AND CONFLICT OF INTEREST

- Confidentiality:
  - What to keep secret?
  - "Proprietary information" - disclosure to competitors would hurt the company. The company has a right to some secrets.
  - What about a right to secrecy about poor practice, unethical policies and practices, etc.?
- Changing jobs:
  - Confidentiality to old employer does not cease!
  - But, there is a soft boundary as you always bring along your expertise and experiences (i.e., your brain)!