SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

Approved by AICTE & Affiliated to Anna University
Accredited by NBA & Accrediated by NAAC with 'A+' Grade,
Recognized by UGC saravanampatti (post), Coimbatore-641035.

Department of Biomedical Engineering

Course Name: 19GET201 PROFESSIONAL ETHICS AND HUMAN VALUES

IV Year : VII Semester

UNIT II - ENGINEERING AS EXPERIMENT

Topic : MORAL AUTONOMY AND KOHLBERG'S THEORY

ENGINEERING AS EXPERIMENT

- Engineering as Experimentation

Engineering itself is based on the improvement of current life, whether in terms of technology or efficiency or availability with less financial efforts. The process of engineering lets you go through a series of different experiments when it comes to practical use.

- **Experimentation** is the main aspect of designing process. An engineer who is ought to design the parts of a car, will be able to understand the result only when it is tested practically. Preliminary simulations are conducted from time to time to know how the new concept of engineering acts in its first rough design. Materials and processes are tried out, usually employing formal experimental techniques. Such tests serve as a basis, which help in developing the final product.

- **Responsibility in Experimentation**
- Although the experiments and the results are uncertain, there are few things which an engineer is ought to keep in mind. Consider the following points which are related to the moral aspects of human behaviour
- To maintain the safety of human beings.
- To procure their rights of consent.
- To keep them aware regarding the experimental nature of the project.
- To warn them about the probable safety hazards.
- Should monitor the results of the experiment continuously.

- **Serving and protecting the public** − Engineers are in a responsible position where trust and trustworthiness, both are essential. A code of ethics functions as a commitment by the profession as a whole that engineers will serve the public health, safety and welfare.
- **Guidance** − Codes are written in brief yet prove effective in offering general guidance to the engineers. More specific directions may be given in supplementary statements or guidelines, which tell how to apply the code. If needed, the assistance is obtained for further specification.

Engineering as Experimentation

- Experimentation → Plays the major role in the **design Process**
- **Time to time Preliminary tests or Simulations**
  - ➢ to convert a new engineering concept into its first rough design
  - ➢ Materials and processes are tried out
- **Design process** → iterative, carried out on trial designs with modifications being made on the basis of feed back

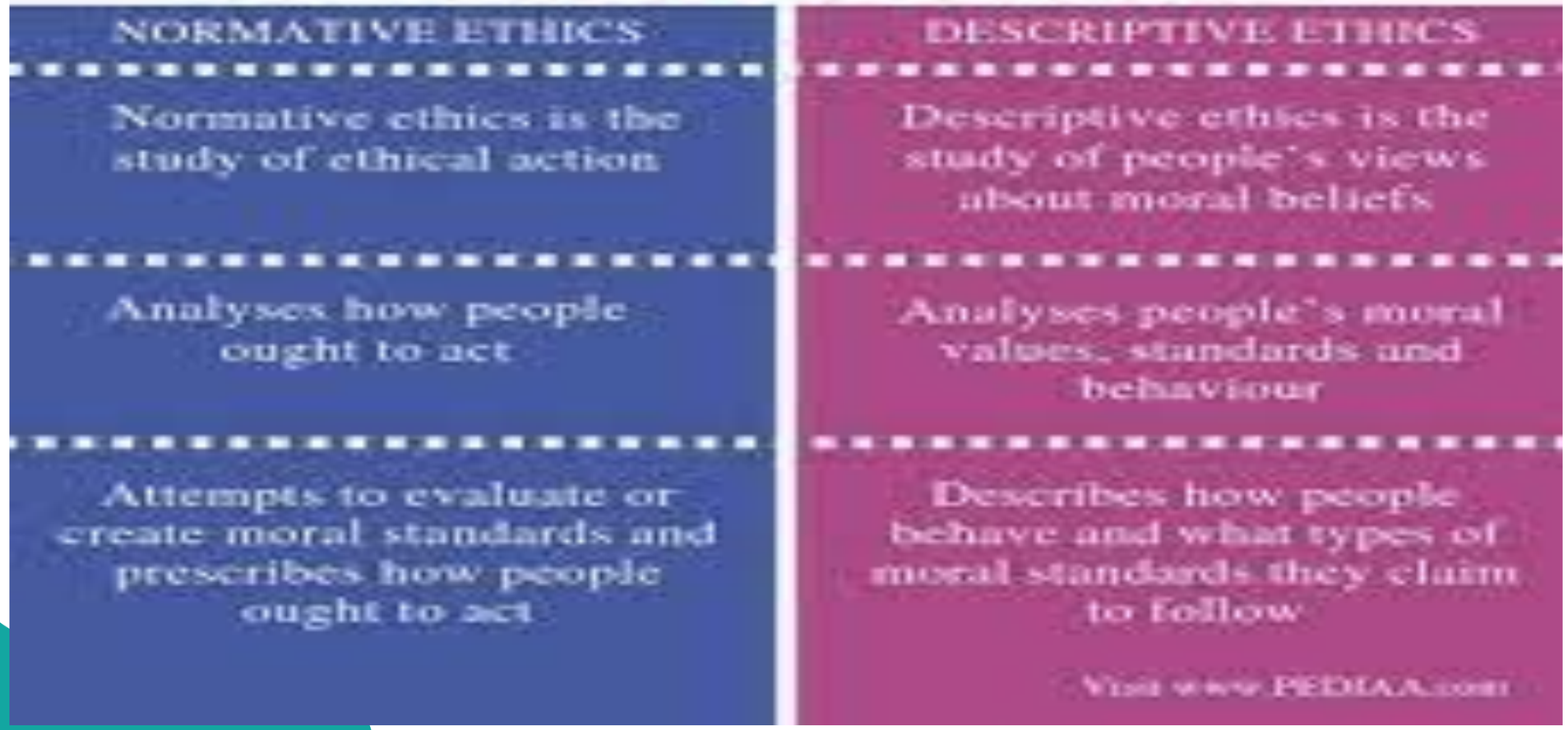
Principal of ethics:

- Honesty
- Integrity
- Accountability
- Respect for life and property
- Concern for public safety and welfare

The two types of engineering ethics:

- Normative.
- The Descriptive senses.

NORMATIVE ETHICS VERSUS DESCRIPTIVE ETHICS



Code of ethics in engineering:

- Engineering code of ethics ensures that engineers put the safety of the members of the society first when doing their work. It means that an engineer will work with standard and approved material and that they will follow the set engineering procedures during their career.

Thank You!