



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



## AN AUTONOMOUS INSTITUTION

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

5. There must be *strong evidence* that making the information public will in fact *prevent the threatened serious harm*.

### Prevention of Whistle Blowing

The following *actions* will *prevent/reduce* whistle blowing:

1. Giving *direct access* to higher levels of management by announcing ‘*open door*’ policies with guarantee that *there won’t be retaliation*. Instead such employees should be *rewarded for fostering ethical behavior* in the company.
2. This gives greater freedom and promotes open communication within the organization.
3. Creation of an Ethics Review Committee with *freedom to investigate complaints and make independent recommendations* to top management.
4. Top priority should be given to *promote ethical conduct* in the organization *by top management*.
5. Engineers should be *allowed to discuss in confidence*, their moral concerns with the ethics committee of their professional societies.
6. When there are differences on ethical issues between engineers and management, *ethics committee members* of the professional societies *should be allowed* to enter into these discussions.
7. *Changes and updations* in law must be explored by engineers, organizations, professional societies and government organizations on a continuous basis.

### Employee Rights



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

**AN AUTONOMOUS INSTITUTION**



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

*Employee rights* are any rights, moral or legal, that involve the status of being an employee.

*Employee rights are:*



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



## AN AUTONOMOUS INSTITUTION

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

- ⇒ There should be *no discrimination* against an employee *for criticizing* ethical, moral or legal policies and practices of the organization.
  
- ⇒ The organization will *not also discriminate* against an employee for *engaging in outside activities* or for objecting to an organization directive that violates common norms of morality.
  
- ⇒ The employee *will not be deprived of* any enjoyment of *reasonable privacy* in his/her workplace.
  
- ⇒ *No personal information* about employees *will be collected* or kept other than what is necessary to manage the organization efficiently and to meet the legal requirements.
  
- ⇒ *No employee* who alleges that her/his rights have been violated *will be discharged* or penalized *without a fair hearing* by the employer organization.

*Some clear examples: falsifying data, avoidance on the safety of a product*

### **Discrimination**

- Discrimination generally means *preference* on the grounds of *sex, race, skin colour, age or religious outlook*.
- In everyday speech, it has come to mean *morally unjustified treatment of people on arbitrary or irrelevant grounds*.
- Therefore to call something ‘Discrimination’ is to condemn it.
- But when the question of justification arises, we will call it ‘*Preferential Treatment*’.



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

**AN AUTONOMOUS INSTITUTION**



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

## **Intellectual Property Rights**

- ❖ *Intellectual Property* is a product of the *human intellect* that has *commercial value*
- ❖ Many of the rights of the ownership common to real and *personal property* are also *common to Intellectual Property*



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

- ❖ Intellectual Property can be *bought, sold, and licensed*
- ❖ Similarly it can be *protected against theft and infringement* by others

***Patent, Design & Trademark together with Copyright form TOTAL INTELLECTUAL PROPERTY***

## **PATENT**

1. Derived from the Latin word ‘LITTERAE PATENTES’ which means ‘Open Letters’ or ‘Open Documents’ to confer rights and privileges.
2. A contract between an Inventor and the Government
3. An exclusive privilege monopoly right granted by the Government to the Inventor
4. Invention may be of an Industrial product or process of manufacture
5. Invention should be new, non-obvious, useful and patentable as per Patents Act
6. The right to the inventor is for limited period of time and valid only within the territorial limits of a country of grant.

*Examples: a drug compound, a tool, maybe  
software effects*

## **DESIGN**

- Meant for beautifying an industrial product to attract the consumer public
- Shaping, Configuration or Ornamentation of a vendible Industrial product
- Exclusive ‘Design Rights’ to the originator for a limited term
- Patents & design embrace the production stage of an industrial activity

## **TRADE MARK**

---

PEHV/ M.KANCHANA/AP/CSE/SNSCE



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



**AN AUTONOMOUS INSTITUTION**

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

- Trade Mark is a name or symbol adopted for identifying goods
- Public can identify from the Trade Mark from whom the product is emanating
- Trade Marks protection is given for an industrial product by the Government

*Examples: Channel No.5's smell, Jacque Villeneuve's face!*



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

## COPY RIGHTS

- ❖ The right to original literary and artistic works
  - Literary, written material
  - Dramatic, musical or artistic works
  - Films and audio-visual materials
  - Sound recordings
  - Computer Programmes/software
  - SOME databases

*Example: Picasso’s Guernica, Microsoft code, Lord of the Rings*

## Need For A Patent System

- Encourages an inventor to disclose his invention
- Encourages R & D activities as the industries can make use of the technology, & avoids redundant research
- Provides reasonable assurance for commercialisation.
- Provides an inducement to invest capital in the new lines of production and thus, help for technical development and upgradation.
- One may get a very good return of income through Patent Right on the investment made in R & D.

## Effect of Patent

- A patentee gets the exclusive monopoly right against the public at large to use, sell or manufacture his patented device.
- A patentee can enforce his monopoly right against any infringement in the court of law



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



**AN AUTONOMOUS INSTITUTION**

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

for suitable damages or profit of account.

- The Government ensures full disclosure of the invention to the public for exchange of exclusive monopoly patent right to the inventor.





# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

## UNIT V - GLOBAL ISSUES

### 1. Give an account of Bhopal Gas Tragedy.

*On December 3, 1984, Union Carbide's pesticide-manufacturing plant in Bhopal, India leaked 40 tons of the deadly gas, methyl isocyanate into a sleeping, impoverished community - killing 2,500 within a few days, 10000 permanently disabled and injuring 100,000 people. Ten years later, it increased to 4000 to 7000 deaths and injuries to 600,000.*

#### ***Risks taken:***

- Storage tank of Methyl Isocyanate gas was filled to *more than 75%* capacity as against Union Carbide's spec. that it should *never be more than 60%* full.
- The company's West Virginia plant was controlling the safety systems and *detected leakages thro' computers* but the Bhopal plant *only used manual labour for control and leak detection.*
- The Methyl Isocyanate gas, being highly concentrated, *burns parts of body* with which it comes into contact, even *blinding eyes and destroying lungs.*

#### ***Causal Factors:***

- Three protective systems *out of service*
- Plant was *understaffed* due to costs.
- Very *high inventory of MIC*, an extremely toxic material.
- The accident occurred in the *early morning.*
- Most of the people killed lived in a shanty (poorly built) town located very close to the plant fence.

***Workers made the following attempts to save the plant:***



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

**AN AUTONOMOUS INSTITUTION**



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

- They tried to turn on the plant refrigeration system to cool down the environment and slow the reaction. (*The refrigeration system had been drained of coolant weeks before and never refilled -- it cost too much.*)



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



## AN AUTONOMOUS INSTITUTION

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

- They tried to route expanding gases to a neighboring tank. (*The tank's pressure gauge was broken and indicated the tank was full when it was really empty.*)
- They tried to purge the gases through a scrubber. (*The scrubber was designed for flow rates, temperatures and pressures that were a fraction of what was by this time escaping from the tank. The scrubber was as a result ineffective.*)
- They tried to route the gases through a flare tower -- to burn them away. (*The supply line to the flare tower was broken and hadn't been replaced.*)
- They tried to spray water on the gases and have them settle to the ground -- by this time the chemical reaction was nearly completed. (*The gases were escaping at a point 120 feet above ground; the hoses were designed to shoot water up to 100 feet into the air.*)

*In just 2 hours the chemicals escaped to form a deadly cloud over hundreds of thousands of people incl. poor migrant labourers who stayed close to the plant.*

## **2. What are the benefits of Multi National corporations doing business in less developed countries for both the MNCs and the host country?**

### ***Benefits to MNCs:***

- Inexpensive labour
- Availability of natural resources
- Favourable tax conditions
- Fresh markets for products

### ***Benefits to developing host countries:***

- New jobs
- Greater pay and greater challenge



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



**AN AUTONOMOUS INSTITUTION**

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

- Transfer of advanced technology
- Social benefits from sharing wealth



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

### 3. What are the three senses of relative values?

#### 3.1. Ethical Relativism

- Actions are morally right in a particular society if they are approved by law, custom, or other conventions of the society.

#### 3.2. Descriptive Relativism

- Value beliefs and attitudes differ from culture to culture and this is a fact.

#### 3.3. Moral Relationalism or Contextualism (Ethical pluralism)

- Moral judgements should be made in relation to factors that vary between issues. Hence it is not possible to formulate rules that are simple and applicable to all situations.

### 4. Which standards should guide engineers’ conduct when working in foreign countries?

*Alternate 1: ‘When in Rome, do as the Romans do’*

*Alternate 2. Follow the identical practices which were followed in the home country.*

*Both are unacceptable. A via media should be found based on the context.*

### 5. What are the International Rights as enumerated by Thomas Donaldson?

- *The right to freedom of physical movement*
- *The right to ownership of property*
- *The right to freedom from torture*
- *The right to a fair deal*
- *The right to non-discriminatory treatment*



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



## AN AUTONOMOUS INSTITUTION

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

- *The right to physical security*
- *The right to freedom of speech and association*
- *The right to minimal education*
- *The right to political participation*
- *The right to subsistence*



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

## 6. What can MNCs do to promote morally just measures? Or what are Richard T. De George’s guidelines for moral promotion by MNCs?

- MNCs business should do *more overall good* than bad towards the economy of the *host country than* doing good to a *few corrupt leaders* in oppressive regimes.
- They must *respect laws and regulations* of the local country *as long as they do not violate basic moral rights*.
- They must *pay a living wage*, even when local companies fail to pay such a wage, but otherwise pay only enough to attract competent workers.
- It is permissible for the US to transfer dangerous technology like asbestos production to another country and then simply adopt that country’s safety laws *only under the following conditions*.
  - Workers may be so desperate for income to feed their families that they will work under almost any conditions
  - Pay workers for the extra risk
- *Good judgements exercised in good faith*, than abstract principles, is the only way to address practical problems.

## 7. Write in brief about Technology Transfer and Appropriate Technology?

### 7.1. Technology Transfer:

*‘The process of moving technology to a novel setting and implementing there.’*

- Novel setting is any situation containing at least one new variable relevant to success or failure of given technology
- Transfer of technology from a familiar to a new environment is a complex process



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

## 7.2. *Appropriate Technology:*

*‘Identification, transfer, and implementation of the most suitable technology for a new set of conditions’*





# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



## AN AUTONOMOUS INSTITUTION

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

- Conditions include social factors that go beyond routine economic and technical engineering constraints
- Identifying them requires attention to an array of human values and needs that may influence how a technology affects the novel situation
- Intermediate technology

### 8. How is environment degraded?

1. By causing injuries to nature
  - i. Usually this damage is caused slowly
  - ii. Sometimes this also happens in sudden strikes
2. Misuse of our resources, fouling our environment
3. Practicing growths in consumptions and population leading to non-availability of resources
4. Industrial activity denudes land (to destroy all plant and animal life), pollutes atmosphere and water, reduces the yield from sea and land

### 9. What are the questions to be answered by Engineers in their role as experimenters?

- *How does an industry affect the environment?*
- *How far it can be controlled?*
- *Whether protective measures are available and implemented?*
- *Whether engineers can ensure safe & clean environment?*

### 10. What is acid rain? What are its effects?

#### ***Acid rain:***

- pH of normal rain is 5.6



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



**AN AUTONOMOUS INSTITUTION**

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

- pH of rainfall in north eastern areas of North America is 3.9 to 4.3.
- It is 10 to 100 times more acidic than normal. This is ‘acid rain’.
- Snowmelt into water releases huge amount of acid which got frozen during winter.



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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

## *Effects:*

- ‘Acid shock’ from snowmelt causes mass destruction of fish. On long term it also harms fish eggs and sources of food.
- Thousands of lakes were killed by acid rain in Scandinavia and North America.
- The causes are burning of fossil fuels leading to release of SO<sub>2</sub> in particular and Nitrogen oxides.
- Problems of Sweden caused by Industrial plants in England and North Europe.
- Problems of North America caused by utilities in Ohio valley, the largest polluter of SO<sub>2</sub> in USA.
- Some of the potential changes are still unknown
  - Micro organisms in soil are being affected
  - Groundwater is polluted but its ultimate effects are not known
  - The effects may be known only after another 100 years
- Effect on food sources are also unclear

## **11. What are the other problems caused to the environment?**

- Build-up of CO<sub>2</sub> from the use of fossil fuels by Industrial nations could result in *Greenhouse effect*.
- Damage to protective OZONE layer due to the release of Freon is related to technological products used by the people of these nations.

## **12. What is Greenhouse effect?**

‘Greenhouse Effect’ is defined as ‘The progressive warming up of earth’s surface due to blanketing effect of man made CO<sub>2</sub> in the atmosphere.’

A greenhouse is that body which allows the short wavelength incoming solar radiation to