VEER NARMAD SOUTH GUJARAT UNIVERSITY

Udhna-Magdalla Road, Surat-7

F.Y.B.A.
Environmental Science

[In Effect from Academic year 2004-05]

Preamble:

The process of development takes its toll by way of Environmental deterioration. Humanity can't play ignorant towards this process of deterioration. The poverty, bourgeoning population and the indifferent attitude are hastening the process and ignoring the consequences. Honble Supreme Court has issued a mandate along with the prescribed syllabus to be implemented at the undergraduate courses.

This syllabus will replace the old syllabus of "Science, Technology, Environment & Society" and "Environment and Society".

The paper shall have the weightage of 100 marks, where 30% shall be for the internal evaluation and 70% will be for the University annual examinations.

The paper will be taught throughout the year. The total teaching hours envisaged for the completion of this course are 60.

It is expected to impart …

- Information about the status of Environment aimed to create fruitful and meaningful awareness in the students.
- Ability to grasp and identify the environmental problems and to take steps to ameliorate the situation.

Unit:-1 Natural Resources:

Forest: Post and the present status. Exploitation pressure, threats, conservation measures. Forest as a reservoir of biodiversity Forest as a renewable resource. Problems of monoculture.

Water: Water cycle, types of water sheds - marine, rivers, ponds & lakes, underground aquifers. Dams and their social and environmental impact, over utilization of water and consequences, recharging (harvesting) and conservation.

Mineral: Uses, exploitation and further projections. Mines and minerals. Impact on Environment.

Food: Food for humanity and pets (poultry, cattle) problems and processes of food production.

Cultivars: Diversity Vs. monocultures. Aspects of modern Agro industry: high yielding varieties, fertilizers Vs. manures, irrigation and water logging, pesticides.

Energy: Renewable & non-renewable energy resources: Alternative sources of energy. Limitations and impact of fossil fuels.

Land: Present status of Land use pattern arable, fallow, user lands. Land degradation, soil erosion, desertification, and conservation measures wasteland reclamation.

Unit:-2 Ecosystems:

- Concept and types of Ecosystems.
- Producers, consumers and decomposers.
- Energy flow in ecosystem.
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction and features of ecosystems:
  - Forest ecosystem.
  - Desert ecosystem
  - Aquatic ecosystems.

Unit:-3 Productivity and its conservation:

- Concept, types
- Importance of diversity
- Mega biodiversity centres & biodiversity hot spots.
- Status of biodiversity in India & Gujarat.
- Threats of biodiversity
- Concept of threatened, vulnerable and rare species.
- Measures of conservation: In situ and ex-situ conservation of biodiversity.

Unit:-4 Environmental Pollution:

Causes and effects of pollution for …

a. Air (including thermal changes, acid rains, ozone layer depletion)
b. Water - Marine & fresh waters
c. Land
d. Noise
e. Nuclear hazards and radiation pollution

Effects of urbanizations: Congestion, solid waste management.
Effects of Industrialization.
Disasters: types, causes, management.
Case study: Earthquake, Bhopal, Japan A-bomb explosion.

Unit:-5 Human population and the Environment:

- Population growth: world scenario with emphasis on Indian scenario.
- Women and Child welfare.
- Environmental and human health.

- Epidemic and endemic diseases with reference to environmental degradation (Malaria, Typhoid, Diarrhoea, Dysentery, Cholera, Rickettsia, role of information technology in environment and human health).

Unit:-6 Society, Government and Environment:

- Concept of sustainable development and the bearing capacity of resources.
- Problems of development.
  - Migration and unbalancing (Villages Vs. Cities)
  - Rehabilitation of displaced communities.
- Environmental ethics: Issues and possible solutions.
- Environment protection Act.
- Air (Prevention and control of pollution) Act.
- Water (Prevention and control of pollution) Act.
- Wild life protection Act.
- Forest conservation and Biodiversity protection Act.
- Public awareness and human rights.
- Case studies on environmental molestation and peoples triumph (silent valley, chipko andolan)
- Global Earth summits.

Unit:-7 Social awareness and participatory environmental protection as social responsibility:

Role of individuals, NGOs and other social institutions like Universities, Schools, housing societies, residential settlements and colonies of industries towards following issues.

- Illicit cutting of Trees and killing of wild animals.
- Green belt near residential society, villages and factory, school, cemetery, crematorium.
- Effluent leakage (Pollution by factories or sewage in the town).
- Dirt-litter accumulation in the street.
- Noise near hospitals and noisy industry near residential areas.
- Foul smell and eye irritation.
- Dying fishes and water shed banks.
- Well and river water getting stained due to water pollution.
- Pilferage of electricity.

Unit:-8 Remedial measures and protection strategies:

- Control of air and water borne diseases created especially due to pollution.
- Food contamination by
  - Heavy metals
  - Organic poisons & pesticides
  - Radio active isotopes
- Noise abatement
- Water treatment and purification for gray water & black water.
- Industrial waste reduction and treatment plants.

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22. Wagner K.D. 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA. 499p. **(R)**

@ Magazine,
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Useful Websites:

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2. www. gobartimes.org.
3. panditji@cseindia.org.
4. www.greywater.net.
5. http://doityourself.com/garden/greywater.htm.