

SARDAR PATEL UNIVERSITY
BCA FIRST SEMESTER
Skill Enhancement Compulsory Course (SECC)
Environmental Studies- US01SBCA21 (T)

Effective from June 2018

2 Credits, 2 periods per week

Total Marks 50, Internal -15 Marks, External-35 Marks, Exam duration: 2 hours

Unit 1: Introduction to Environmental studies (7 lectures)

- Definition, Scope and importance of Environmental Studies
- Multidisciplinary nature of environmental studies
- Component of Environment: Atmosphere, Hydrosphere, Lithosphere, Biosphere
- Biogeochemical cycles : Carbon cycle and Nitrogen cycle
- Concept of sustainability and sustainable development.

Unit 2: Ecosystems (7 lectures)

- Definition, Structure of ecosystem – Abiotic and Biotic components (Producers, Consumers and Decomposers)
- Functions of Ecosystem :Energy flow in an ecosystem , Food chains, Food webs with examples
- Types of Ecosystem; Forest ecosystem ,Lake / Pond ecosystem, Desert ecosystem

Unit 3: Natural Resources: (8 lectures)

- Classification -Renewable & Non-renewable Resources and types
- Land resources & Land degradation, Soil erosion & Conservation
- Forest Resources - Forest wealth, Deforestation: Causes and impacts
- Water Resources- Use and over-exploitation of surface and ground water, floods and droughts
- Energy resources- use of alternate energy sources, growing energy needs
- Conservation of Natural resources

Unit 4: Biotic Interactions (8 lectures)

- **Positive Interactions with suitable examples**
 - A. Mutualism
 - B. Commensalism
 - C. Proto-cooperation
- **Negative Interactions with suitable examples**
 - A. Exploitation
 - B. Competition
 - C. Antibiosis

Suggested Readings:

1. Ecology and Environment by P.D. Sharma
2. Fundamentals of Ecology by E.P.Odum
3. Ecology by Mohan P. Arora
4. Fundamentals of Ecology by M.C. Dash
5. Environmental Science by S.C.Santra
6. An Introduction to Environmental Engineering & Science by Gilbert N Master
7. Encyclopaedia of Environmental Pollution and Control by R. K. Trivedi
8. Ecology and Sustainable development by P.S. Ramkrishana
9. Environmental Conservation; Fundamentals of Forestry Vol 5 by S.S. Negi, Bishen Singh, Mahendra Pal Singh

SARDAR PATEL UNIVERSITY
B.Sc. SECOND SEMESTER
Skill Enhancement Compulsory Course (SECC)
Environmental Studies- US02SEVS21 (T)

Effective from June 2017

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Unit 1: Environmental Pollution (7 lectures)

- Environmental pollution - Definition ; Air, Water, Soil and Noise pollution (Causes, Effects and Control)
- Nuclear hazards and human health risks/ effects
- Solid waste and its management: Control measures of urban and industrial waste

Unit 2: Environmental Issues & Policies (7 lectures)

Definition, Causes and impacts of following:

- Climate change
- Global warming
- Ozone layer depletion
- Acid rain

Environment Laws and Practices: Environment Protection Act; Wildlife Protection Act; Forest Conservation Act

Unit 3: Human Communities and Environment (8 lectures)

- Human population growth: Impacts on environment, human health and welfare (water, food and air borne diseases)
- Environmental communication and public awareness
- Environmental movements: Chipko and Narmada BachaoAndolan
- Disaster management: floods, earthquake, cyclone and landslides
- Resettlement and rehabilitation of project affected persons

Unit 4: Wildlife Management (8 lectures)

- Concepts of Wildlife Management
- Biodiversity: Types and Conservation in brief
- Wildlife of Gujarat -Threatened Species (Distribution, Habitat, Behaviour, Description, Food, Population of Asiatic Lion, Sloth Bear, Wild Ass, Pangolin, Black buck)
- Protected Areas Network: National Parks, Sanctuaries, Biosphere Reserves
- Special Projects of Endangered Species: Project Tiger, Project Elephant, Crocodile Breeding Project

Suggested Readings:

1. Basics of Environmental Studies by N.S. Varandani
2. Environmental Science by Y.K.Singh
3. Environmental Science by S.C.Santra
4. Environmental Studies by R.Rajagopalan
5. Textbook of Environmental Studies by D.K.Asthana& M. Asthana
6. Environmental Studies by Manoj Tivari, KapilKhulbel&ArchanaTiwari
7. Environmental Chemistry by A.K.De
8. Non-Conventional Energy Sources by G.D. Rai