

SARDAR PATEL UNIVERSITY

B.Sc. FIRST SEMESTER

Skill Enhancement : US01SENV21 (T) Environmental Studies

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