

PART-IV (3)

COURSE CODE: 7BES2

I YEAR – II SEMESTER

COURSE – ENVIRONMENTAL STUDIES

Unit I The Multidisciplinary Nature of Environmental Studies

Definition, Scope and importance

Need for public awareness

Unit II Natural Resources

Renewable and non-renewable resources

- a) Forest Resources: Use and over-exploitation, deforestation, case studies, Timber extraction, mining, dams and their effect on forests and tribal people
- b) Water Resources: Use and over-Utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.
- c) Mineral resources: Use and exploitation, experimental effects of extracting and using mineral resources, case studies.
- d) Food resources: world food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy resources, Case studies.
- f) Land resources: Land as a resource, land degradation, main induced landslides, soil-erosion and desertification
 - Role of individual in conservation of natural resources
 - Equitable use of resources for sustainable lifestyle

Unit III Ecosystems, Bio-diversity and its conservation

Ecosystems

- ✓ Concept of an Ecosystem
- ✓ Structure and function of an Ecosystem
- ✓ Energy Flow in the Ecosystem
- ✓ Food Chains, Food Webs and Ecological Pyramids

Biodiversity and its conservation

- ✓ Introduction- Definition: Genetic, Species and Ecosystem Diversity
- ✓ Bio-Geographical Classification of India
- ✓ Value of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetic and Option Values.
- ✓ Biodiversity at Global, National and Local Levels
- ✓ India as a Mega-Diversity Nation
- ✓ Hot Spots of Biodiversity
- ✓ Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlife Conflicts
- ✓ Endangered and Endemic Species of India
- ✓ Conservation of Biodiversity in-Situ and Ex-Situ Conservation of Biodiversity

Unit IV Environmental Pollution

- Causes, Effects and Control measures of:-
 - a. Air Pollution
 - b. Water pollution
 - c. Soil pollution
 - d. Marine pollution
 - e. Noise pollution
 - f. Thermal pollution
 - g. Nuclear hazards

Unit V Field Work

- Visit to a local area to document environmental assets—river/ forest/ grassland/ hill/ mountain
- Visit to a local polluted site- Urban/Rural/Industrial/Agricultural
- Study of common Plants, insects, birds
- Study of simple ecosystem-pond, River, Hill slopes, etc

Books for Reference:

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2. Bharucha Erach The Biodiversity of India, Mapin Publishing Pvt. Ltd, Ahamedabad-380013, India, Email: mapin@cent.net®
3. Burner R.C. 1989, Hazardous Waste Inclination McGraw Hill Inc. 480p
4. Clark R.S. Marine Pollution, Clanderson Press Oxford (TB)
5. Cunnigham, W.P. Cooper, T.H. Gorhani, E& Hepworth, M.T 2001 Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.
6. De.A.K. Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment®
8. Gleick H.P. 1993, Water in crisis, Pacific Institute for studies in Dev, Environment & Security, Stockholm Env. Institute, Oxford Univ. Press, 473p
9. Hawlinks R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
10. Heywood, V.H & Watson, R.T. 1995, global biodiversity Assesment, Cambridge Univ. Press, 1140p
11. Jadhav, H&Bhosale V.M. 1995, Environmental Protection and Laws, Himalaya Pub; House, Delhi 284p
12. McKinney, M.L & Schoch, R.M. 1996 Environmental Science systems& Solutions, web enhanced edition 639p
13. Mhaskar A.K. Matter Hazardous, techno-Science Publications (TB)
14. Miller T.G. Jr. Environmental Science wadsworth Publicing Co (TB)
15. Odum, E.P. 1971 fudamentalof Ecology, W.B. Saunders Co. USA 584p
16. Rao M.N & Datta, A.K., 1987, Tehchno-Science, Waste water Treatment. Oxford& IBH publ, Co. Pvt. Ltd., 345p
17. Sharma B.K. 2001, environemtal chemistry Goel publ, House, Meerut
18. Survey of the Environmental the Hindu (M)
19. Townsend C, harper J, and Michael Degon, Essential of ecology, Blakewell Science (TB)
20. Trivedi R.K., Hand book of Environmental laws, Rules, Guidelines, compliances and Standards, Vol I and II, Enviro Meida ®
21. Trivedi R.K. & P.K. Goel Introduction to Air pollution, Techno-Science Publications (TB)
22. Wanger K.D, 1998 Environmental Management W.B. Environmental Management. W.B. Saunders Co. Philadelphia, USA. 499p