

REVISED SYLLABUS – 2012

ENVIRONMENTAL STUDIES

Unit 1: Introduction to environmental studies & Natural Resources

- Definition, scope and importance of Environmental Studies
- Multidisciplinary nature of Environmental Studies
- Need for public awareness
- Natural resources and associated problems
- (a) Forest resources: Use and over-exploitation, Causes and effects of deforestation: timber extraction, dams, & mining, case studies from NE region.
- (b) Water resources: Use and over-utilisation of surface and ground water, floods, droughts, conflict over water, dams-benefits and problems, Water conservation, rain water harvesting, watershed management
- (c) Mineral resources: Uses and exploitation, environmental effects of extraction and using mineral resources.
- (d) Food resources: World food problem, changes caused by agriculture and overgrazing, effects of modern agriculture: fertilizer-pesticides problems, water logging, salinity.
- (e) Energy resources: Growing energy needs, renewable and non renewable energy sources.
- (f) Land resources: Land as a resource, land degradation, soil erosion and desertification, Wasteland reclamation
- Role of individual and traditional institutions in conservation of natural resource
- Equitable use of resources for sustainable lifestyles

(16 lectures)

Unit 2: Ecosystems, Biodiversity and Its Conservation

- Concept of an ecosystem
- Structure and function of an ecosystem: Producers, consumers and decomposers, Energy flow in an ecosystem and Nutrient cycling: Carbon and Nitrogen Cycle
- Food chains and food webs
- Ecological succession
- Examples of different types of Ecosystems.
- Introduction to biodiversity: Definition- genetic, species and ecosystem diversity
- Value of Biodiversity: Consumptive value, productive use, social, aesthetic & ecological values.
- Hot-spots of biodiversity, India as a mega-diversity nation.
- Threats to biodiversity
- Man-wildlife conflicts
- Endangered and endemic species of India
- In-situ and ex-situ conservation of biodiversity

(16 lectures)

Unit 3: Environmental Pollution and Environmental Laws

- Definition, causes, effects and control measures of:
 - (a) Air pollution
 - (b) Water pollution (including marine pollution)
 - (c) Soil pollution
 - (d) Noise pollution
- Climate change (Greenhouse effect & Global warming), Acid rain, Ozone layer depletion.
- Solid waste management: Causes, effects and control measures of urban and industrial wastes
- Role of an individual in prevention of pollution
- Environmental Legislation Environmental Protection Act, 1986; Forest Conservation Act, 1980; Air (Prevention & Control of Pollution) Act, 1981; Water (Prevention & Control of Pollution) Act, 1974; Wildlife Protection Act, 1972.
- Issues involved in enforcement of environmental legislations.

(14 lectures)

Unit 4: Social Issues, Human Population and the Environment

- Sustainable development
- Urban problems related to energy
- Resettlement and rehabilitation of people: its problem and concern
- Environmental ethics: Issues and possible solution
- Consumerism and waste products
- Population growth, variation among nations
- Population explosion-Family Welfare Programme
- Environment and human health
- Human rights
- Value education
- Role of Information Technology in Environment and human health
- Disaster management: Floods, earthquakes, cyclone and landslides

(14 lectures)

Suggested Reading

Agarwal, K. C. 2001. Environmental Biology, Nidhi Publication Ltd. Bikaner

Basak, A. 2009. Environmental Studies, Pearson Education India

Bharucha, E. 2004. The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad- 380013, India.

Bharucha, E. 2004. A Textbook for Environmental Studies, Universities Press (India) Private Limited, Hyderabad.

- Botkin, D.B and Keller, E.A. 2004. Environmental Science: Earth as a living Planet. John Wiley & Sons, New York.
- Brunner, R.C. 1989, Hazardous Waste Incineration, McGraw Hill Inc, 480 p
- Dave, D and Katewa, S.S. 2012. Textbook of Environmental Studies, Cengage Delmar Learning India Pvt Ltd
- De, A.K, 2003. Environmental Chemistry, Wiley Eastern Ltd, 5th Edition
- Down to Earth, Centre for Science and Environment, New Delhi
- Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment and security, Stockholm Env. Institute Oxford University Press. 473 p
- Hawkins, R.E. 1986. Encyclopedia of Indian History, Bombay Natural History Society, Bombay, Oxford University press.
- Heywood, V.H and Waston R.T. 1995. Global Biodiversity Assessment. Cambridge University Press 1140 p.
- Jadhav, H and Bhosale, V. M. 1995. Environmental Protection and Laws. Himalaya publication house, Delhi, 284 p
- Kaushik, A. and Kaushik, C.P. 2009, Perspective in Environmental Studies, New Age International Pvt. Ltd. India.
- Mishra, D.D. 2010. Fundamental concepts of Environmental Studies, S. Chand Group, New Delhi
- Mohapatra, A.C., Barik, S.K., Roa, C.S., 1999, Man and Environment, Star Publishing House Shillong
- Odum, E.P. 1996. Fundamentals of Ecology. Natraj Publisher, Dehra Dun.
- Sharma, B.K. 2001. Environmental Chemistry, Geol Publication House, Meerut
- Wanger, K.D. 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA. 499p

Model Question Paper Structure

Short Answer Type	$1.5 \times 10 = 15$ marks
Long Answer Type	$4 \times 5 = 20$ marks
Essay Type	$4 \times 10 = 40$ marks

Short answer type

There will be 10 questions of 1.5 mark each ($1.5 \times 10 = 15$ marks). Two questions should be set from each unit.

Long answer type

There will be 5 questions of 4 mark each ($4 \times 5 = 20$ marks). Two questions should be set from each unit.

Essay type

There will be 4 questions of 10 marks each ($4 \times 10 = 40$ marks). Six questions will be set taking at least one from each unit. The question can have parts. There can be short essay or short notes type questions. The student will need to answer 4 out of 6 questions at least 1 question from each unit.