

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**



**Name of the Faculty: All Faculties  
Environmental Studies  
(Non-Credit)**

**CHOICE BASED CREDIT SYSTEM**

**Syllabus-ENVIRONMENTAL STUDIES**

**(Syllabus to be implemented w.e.f. June 2023)**

## Punyashlok Ahilyadevi Holkar Solapur University, Solapur

### All Undergraduate (UG): Fourth Semester

### Compulsory Paper-Environmental Studies

### (CBCS - Syllabus)

- 1) **Title of the Paper:** Environmental Studies
- 2) **Pattern:** Semester and Credit system
- 3) **Total Contact Hours:** 45 hours

## Structure for Syllabus of Environmental Studies

Class & Semester	Code	Name and type of the paper		L/P	Credits	Total Marks	UA	CA
		Type	Name					
<b>For All UG Semester IV (Second year)</b>								
All UG Second Year (4 <sup>th</sup> Semester)	EVS	Ability Enhancement Course (AECC) and Non Credit	Environmental Studies	50	NC	50	40	10
<b>Compulsory: *Unit Test / Assignment/ Seminar/ Nature Visits / Field Work / Field Tour/ Industrial visits of 1-2 days and submission of report is compulsory under internals marks (CA)</b>								

1. The credit earned by student with this course shall not be considered for calculation of SGPA/CGPA
2. This course is not considered as a passing head for counting passing heads for ATKKT
3. Student must pass this subject for award of the degree

#### Evaluation Scheme:

Theory paper has 50 marks out of which 40 marks will be for Term End Examination and 10 marks for College Internal Assessment. Hence the candidate must appear for internal evaluation of 10 marks and external evaluation (University Examination) of 40 marks.

#### A) College Internal Evaluation:

In case of theory paper, internal examination has to conduct by department / college.

Marks for internal assessment shall be given based on Unit Test / Assignment/ Seminar/ Nature Visits / Field Work / Field Tour/ Industrial visits of 1-2 days and submission of report is compulsory under internals marks (CA).

**B) External Evaluation (End of Term University Examination):**

**I) Nature of Theory question paper:**

- 1) Theory paper is of 40 marks.
- 2) Theory paper will be of 2 hours duration
- 3) There shall be 05 questions each carrying 08 marks.
- 4) Students have to attempt all the questions.

**Syllabus As Per UGC Guidelines**

*UGC Letter – File No. 13-01/2000 (EA/ENV/COS-01 Dated 14<sup>th</sup> May, 2019)*

**Environment Studies (AECC)**

**Theory Lectures - (45)**

**Unit 1 : Introduction to Environmental Studies**

(2 lectures)

- Multidisciplinary nature of environmental studies
- Scope and importance; Concept of sustainability and sustainable development

**Unit 2 : Ecosystems**

(6 lectures)

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems :
  - a) Forest ecosystem
  - b) Grassland ecosystem
  - c) Desert ecosystem
  - d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

**Unit 3 : Natural Resources : Renewable and Non-renewable Resources**

(8 lectures)

- Land resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources : Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

**Unit 4 : Biodiversity and Conservation**

(8 lectures)

- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity : Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

**Unit 5 : Environmental Pollution** (8 lectures)

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management : Control measures of urban and industrial waste.
- Pollution case studies.

**Unit 6 : Environmental Policies & Practices** (7 lectures)

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act, Air (Prevention, & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

**Unit 7 : Human Communities and the Environment** (6 lectures)

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management : floods, earthquake, cyclones and landslides.
- Environmental movements : Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

**Unit 8 : Field work**

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river, dam, pond, ocean / marine etc.

**Suggested Readings / Reference Materials:**

1. Environmental Studies E-Text Book (Marathi and English Medium) Solapur University, Solapur, (2017).
2. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
3. Gadgil, M., & Guha, R. 1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
4. Gleeson, B. and Low, N. (eds.) 1999. *Global Ethics and Environment*, London, Routledge.
5. Gleick, P. H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
6. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. *Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
7. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36-37.
8. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29-64). Zed Books.
9. McNeill, John R. 2000. *Something New Under the Sun: An Environmental History of the Twentieth Century*.

10. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
11. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. *Environmental and Pollution Science*. Academic Press.
12. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
13. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.
14. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India. Tripathi 1992*.
15. Sengupta, R. 2003. *Ecology and economics: An approach to sustainable development*. OUP.
16. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
17. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
18. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
19. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders.
20. Wilson, E. O. 2006. *The Creation: An appeal to save life on earth*. New York: Norton.
21. World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University Press.

Nature of Question Paper for CBCS Semester Pattern

All UG in all Faculties

Title of Paper: Environmental Studies (Compulsory)

Time: - 2 hrs.

Total Marks: - 40

**Instructions:**

1. All questions are compulsory
2. Draw Neat diagram and give equations wherever necessary
3. Figures to the right indicate full marks

**Q. 1 Multiple choice questions (One Marks each) 08**

- .....
- 1) a)            b)            c)            d)
  - 2)
  - 3)
  - 4)
  - 5)
  - 6)
  - 7)
  - 8)

**Q. 2 Answer any FOUR of the followings. 08**

- i)
- ii)
- iii)
- iv)
- v)
- vi)

**Q. 3 Write short notes on any TWO of the following 08**

- i)
- ii)
- iii)

**Q. 4 Answer any TWO of the following 08**

- i)
- ii)
- iii)

**Q. 5 Answer any ONE of the following 08**

- i)
- ii)

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