

SCHEME AND SYLLABI

**Compulsory Under Graduate Course in Environmental Studies
(All Streams)**

**Approved by
Board of Studies
In its meeting held on**

18/05/2024



**Department of Energy and Environmental Sciences
Faculty of Life Sciences
Chaudhary Devi Lal University, Sirsa
(Haryana)-India
PIN-125055**

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Course Code & Course Title along with credit details

Compulsory Under Graduate course in Environmental studies
(All Streams)

Paper I (Environmental studies)

Semester	Course code	Course title	Credits			Marks
			L	T	P	
First (1 st) semester	BSC/BCOM/BA/EVS/MD/1/VAC/101	ENVIRONMENTAL STUDIES-I	2	-	-	50
Second (II nd) semester	BSC/BCOM/BA/EVS/MD/2/VAC/151	ENVIRONMENTAL STUDIES-I	2	-	-	50

Paper II (Environmental studies)

Semester	Course code	Course title	Credits			Marks
			L	T	P	
Fourth (IV th) semester	BSC/BCOM/BA/EVS/MD/4/VAC/251	ENVIRONMENTAL STUDIES-II	2	-	-	50

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COURSE CODE: BSC/BCOM/BA/EVS/MD/1/VAC/101 (1st Semester)

BSC/BCOM/BA/EVS/MD/2/VAC/151 (2nd Semester)

COURSE TITLE: ENVIRONMENTAL STUDIES-I

Credit: 2 (Marks: 50)

Exam. Duration: 2Hr

Theory + Internal Assessment: 35+15

Course objectives:

After completing this unit, students will be able to:

- Understand the concept of natural resources, biodiversity, and ecosystems; identify types of natural resources and ecosystems and their global distribution along with factors affecting the availability, and efforts for their conservation and management.
- Develop a critical understanding of local, regional and global environmental and human health issues and sensitize themselves to adverse health impacts of pollution.

Note for the paper setter: The question paper will consist of three questions in all. The first question will be compulsory and consist of five short questions of 1 mark each covering the whole syllabus. In addition, two questions will be set from each of the two units. The candidates are required to attempt two questions of 15 marks each, selecting at least one question from each unit.

Unit I

Natural Resources, Biodiversity and Ecosystems

Natural resources: Definition and Classification; Biotic resources: forests, grasslands, wetlands, wildlife, fresh water and marine; Water resources: fresh water and marine; Soil and mineral resources: Soil as a resource and its degradation; important minerals, Energy resources: Sources and classification, non-renewable and renewable energy sources, over-exploitation and environmental impact; Biodiversity: definition, levels and types of biodiversity, Biodiversity in India and the world; Biodiversity hotspots; Ecosystem: definition, major ecosystem in India (forests, wetlands, grasslands, agriculture, coastal and marine); Conservation policies: *In-situ* and *Ex-situ* conservation; National and International conservation efforts.

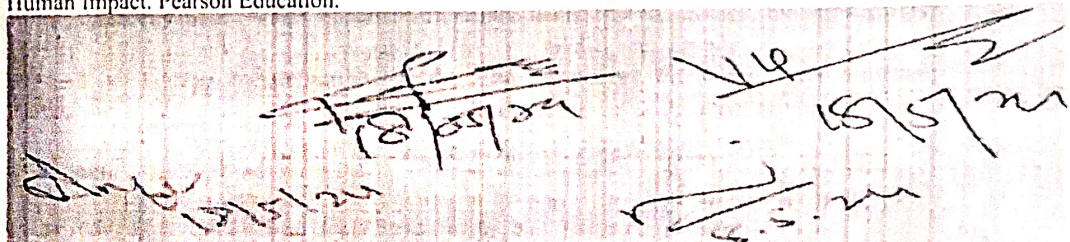
Unit II

Environmental Issues: Local, Regional and Global

Local: Municipal solid waste, Hazardous waste, acid rain, smog, Land use and Land cover change, land degradation, deforestation, desertification, urbanization, biodiversity loss. Regional: Soil pollution: definition and sources of major pollutants, effect on soil and human health, remediation measure. Noise pollution: Definition and sources of noise pollution, Noise standards, effect on human health. Global: Air pollution: definition, major pollutants; Effect on environment and human; National Ambient Air Quality Standards; Indoor air pollution; Water pollution: Definition and sources, surface and groundwater pollution, Water quality parameters and standards, Effect on human and aquatic life. Thermal and Radioactive pollution: Sources and impact on human health and ecosystems. Ozone layer depletion; Climate change.

Suggested readings

1. Chiras, D. D and Reganold, J. P. (2010). Natural Resource Conservation: Management for a Sustainable Future. 10th edition, Upper Saddle River, N. J. Benjamin/Cummins/Pearson.
2. John W. Twidell and Anthony D. (2015). Renewable Energy Sources, 3rd Edition, Weir Publisher (ELBS)
3. William P. Cunningham and Mary A. (2015) Cunningham Environmental Science: A Global Concern, Publisher (Mc-Graw Hill, USA)
4. Gilbert M. Masters and W. P. (2008). An Introduction to Environmental Engineering and Science. Ela Publisher (Pearson)
5. Krishnamurthy, K.V. (2003) Textbook of Biodiversity, Science Publishers, Plymouth, UK
6. Harris, Frances (2012) Global Environmental Issues, 2nd Edition. Wiley- Blackwell.
7. Ahluwalia, V. K. (2015). *Environmental Pollution, and Health*. The Energy and Resources Institute (TERI).
8. Jackson, A. R., & Jackson, J. M. (2000). Environmental Science: The Natural Environment and Human Impact. Pearson Education.



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COURSE CODE: BSC/BCOM/BA/EVS/MD/4/VAC/251
COURSE TITLE: ENVIRONMENTAL STUDIES-II

Credit: 2 (Marks: 50)
Exam. Duration: 2Hr

Theory + Internal Assessment: 35+15

Course objectives:

After completing this unit, students will be able to:

- Gain insights into the historical context of human interactions with the environment and the international efforts to safeguard the Earth's environment and resources towards sustainability. Understand climate change, its science and response measures.
- Understand global initiatives for the environment management. Learn about the major international treaties, institutions and programs and national perspective in protecting and conserving the environment.

Note for the paper setter: The question paper will consist of three questions in all. The first question will be compulsory and consist of five short questions of 1 mark each covering the whole syllabus. In addition, two questions will be set from each of the two units. The candidates are required to attempt two questions of 15 marks each, selecting at least one question from each unit.

Unit I

Human, Environment and Climate Change

The man-environment interaction, industrial revolution and its impact on the environment: Environmental Ethics: Anthropocentric and eco-centric perspectives; Introduction to sustainable development (Club of Rome and UN Conference on Human Environment 1972), Sustainable Development Goals (SDGs)-targets and indicators, challenges and strategies for SDGs. Climate change: Understanding and natural variations: Structure of atmosphere; greenhouse gases and climate change, impact of climate change on environment and human; Carbon capture and storage, National climate action plan and Intended Nationally Determined Contributions (INDCs); Kyoto Protocol; Paris Agreement.

Unit II

Environmental Management: Treaties and Legislation

Environmental Agreements: CBD; CITES; Ramsar Convention; UNCCD; Montreal Protocol; Basel Convention; Rotterdam Convention; Minamata Convention on Mercury; Environmental Legislations: The Wild Life (Protection) Act, 1972; The Water (Prevention and Control of Pollution) Act, 1974; The Forest (Conservation) Act, 1980; The Air (Prevention and Control of Pollution) Act, 1981; The Environment (Protection) Act, 1986; The Biological Diversity Act, 2002; Noise Pollution (Regulation and Control) Rules, 2000; National Green Tribunal; International organizations and initiatives: UNEP, IUCN, WCED, UNESCO, UNFCCC, IPCC. Constitutional provisions- Article 48A, Article 51A(g) and other derived environmental rights; ISO 14001; Concept of Circular Economy; Environmental audit and impact assessment; Concept of 3R (Reduce, Recycle and Reuse); Ecomark scheme.

Suggested Readings

1. Headrick, Daniel R. (2020) Humans versus Nature- A Global Environmental History, Oxford University Press.
2. Hughes, J. Donald (2009) An Environmental History of the World- Humankind's Changing Role in the Community of Life, 2nd Edition. Routledge.
3. Pittock, Barrie (2009) Climate Change: The Science, Impacts and Solutions. 2nd Edition. Routledge.
4. Theodore, M. K. and Theodore, Louis (2021) Introduction to Environmental Management, 2nd Edition. CRC Press.
5. Barrow, C. J. (1999). Environmental management: Principles and practice. Routledge.
6. Kanchi Kohli and Manju Menon (2021) Development of Environment Laws in India, Cambridge University Press.
7. Ministry of Environment, Forest and Climate Change (2019) A Handbook on International Environment Conventions & Programmes. <https://moef.gov.in/wp-content/uploads/2020/02/convention-V-16-CURVE-web.pdf>

