

KOLHAN UNIVERSITY, CHAIBASA



Syllabus for FYUGP, NEP-2020 UG – Environmental Studies (2022 onwards)

Designed by

Dr. Basant Shubhankar
Assistant Professor
Univ. Dept. of Chemistry
KU, Chaibasa

Dr. Shovit Ranjan
Assistant Professor
Univ. Dept. of Zoology
KU, Chaibasa

Dr. Nitish Kumar Mahato
Assistant Professor
Univ. Dept. of Zoology
KU, Chaibasa

EXAMINATION FRAMEWORK FOR VAC-1

Paper Type	Credits	Full Marks	Pass Marks	End Semester Examination
VAC(Theory)	2	50	20	50

END SEMESTER UNIVERSITY EXAMINATION (ESE):

- For End Semester Examination (ESE 50 marks, 2Hrs Exam), there will be two group of questions. Question No.1 will be very short answer type compulsory question in Group A consisting of five questions of 1 mark each. Group B will contain descriptive type five questions of fifteen marks each, Out of which any three are to answer.

Semester-I
Course Title: Environmental Studies (VAC-1)
THEORY (02 Credits)

Unit	Content of Environment Studies	30 Hours
Unit 1	Introduction to Environmental Studies	1 Hour
	Components of environment: atmosphere, hydrosphere, lithosphere, and biosphere; Scope and importance; Concept of sustainability and sustainable development.	
Unit 2	Ecosystems	5 Hours
	Definition and concept of Ecosystem. Structure of ecosystem (biotic and abiotic components); Functions of Ecosystem: Physical (energy flow), Biological (food chains, food web, ecological succession), and Biogeochemical (nutrient cycling) processes. Concepts of productivity, ecological pyramids and homeostasis. Types of Ecosystems.	
Unit 3	Natural Resources	5 Hours
	Land resources; Soil erosion and desertification; Impacts of mining and dam building on environment; Water resources: Natural and man-made sources; Uses of water; Over exploitation of surface and ground water resources; Floods, droughts, and international & interstate conflicts over water; Energy resources: Renewable and non-renewable energy sources; Use of alternate energy sources.	
Unit 4	Biodiversity and Conservation	5 Hours
	Definition of Biodiversity; Levels of biological diversity; Biodiversity hotspots; Endemic and endangered species of India; IUCN Red list criteria and categories; Threats to biodiversity; Biodiversity conservation strategies: in-situ and ex-situ methods of conservation; National Parks, Wildlife Sanctuaries, and Biosphere reserves; Biological Indicator species.	
Unit 5	Environmental Pollution	4 Hours
	Environmental pollution: causes, effects, and controls; Pollutants and it's types; Nuclear hazards and human health risks; Solid waste management.	
Unit 6	Global Environmental Issues and Policies	5 Hours
	Climate change, Global warming, Ozone layer depletion, and Acid rain; International agreements and programs related to climate and environmental issues; Sustainable Development Goals; Environment legislation in India: Wildlife Protection Act, 1972; Water (Prevention and Control of Pollution) Act, 1974; Forest (Conservation) Act 1980; Air (Prevention & Control of Pollution) Act, 1981; Environment Protection Act, 1986; Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.	
Unit 7	Environment and Ecology (with reference to Jharkhand state)	5 Hours
	Geographical feature: Soil, Climate, River, lakes, flora & fauna,	

	<p>National parks & Wildlife Sanctuaries, Policies & Programmes related to conservation of forest in context to Jharkhand.</p> <p>Industry in Jharkhand and its impact on Environment: large scale Industry (Iron & Steel, Mining & Mineral Extraction, Chemical & Explosive, Cement, Agro based and Automotive) and small-scale Industry (Handloom sector, Tassar & Lac industry, Sericulture, Stone industry).</p> <p>Mineral profile & Tourist Spots of Jharkhand (Hill Station, Waterfalls, Water spots, Religious Tourist Place, Cultural & Ethnic Tourist spots).</p>	
--	---	--

Suggested Readings:

- Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
- Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
- Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
- Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
- Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
- Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
- Warren, C. E. 1971. Biology and Water Pollution Control. WB Saunders.