

S. S. JAIN SUBODH P.G. COLLEGE
(AUTONOMOUS)
(Affiliated to University of Rajasthan)



VAC-ENVIRONMENTAL STUDIES

(Common to all Undergraduate Programme under the
Faculty of Arts / Commerce / Science)

NEP 2020
IN
(Environmental Science)

VAC-ENVIRONMENTAL STUDIES

Semester	Code of the Course	Title of the Course/Paper			NHEQF Level	Credits
	VAC	Environmental Studies				2
Level of Course	Type of the Course	Credit Distribution		Offered to NC Student	Delivery Type of the Course	
		Theory	Practical			
Introductory	Value Added	2	-	Yes	30 Hours Theory	
Prerequisites	XII Pass					
Objectives of the Course:	Objectives of the Course – 1. To make students aware about the importance of physical environment and its various components. 2. To make students realize their role in the protection and maintenance of a healthy environment for sustainable development. 3. To understand the significance and issues related to natural resources, ecosystems, biodiversity. 4. To encourage them to explore ways of managing/ conserving natural resources. 5. To develop understanding of causes and sources of environmental pollution and their impact on quality of life. 6. To educate the young minds about environmental movements and laws. 7. To encourage to adopt sustainability as a practice in life, society, and industry.					

Examination Scheme-

Type	Paper code and Nomenclature	Duration of Examination	Maximum Marks (CA + EoSE)	Minimum Marks (CA + EoSE)
Theory	VAC Environmental Studies / VAC- Environmental Studies	1 Hrs-CA 1 Hrs-EoSE	10 Marks-CA 40 Marks-EoSE	4 Marks-CA 16 Marks-EoSE

The question paper for **Environmental Studies** will be so set that it has 40 multiple choice questions (Bilingual) of one mark each. The Question paper will be of duration of 1 hour. The examinees will have to give their answers on an OMR sheet only to be provided by the University whose evaluation will be done based on OMR Scanning Technology.

Detailed Syllabus

VAC— ENVIRONMENTAL STUDIES

Unit I Humans and the Environment

Definition, scope and multidisciplinary nature of Environmental Studies. Need for Environmental awareness and environmental education in present-day context. Population growth, variation among nations, Population explosion: Family Welfare Programme, Impacts of rising population on human health and environment. Human Rights, Environmental ethics, World food problems, Role of Information Technology in Environment and human health.

Unit II Natural Resources, Management and Sustainability

Classification of resources: renewable and non-renewable resources.

Forest resources: Use and over-exploitation, causes and impacts of deforestation.

Water resources: Use and over-utilization of surface and groundwater, floods, drought, and conflicts over water.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, related case studies.

Energy resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources. Related case studies.

Land resources, Land degradation, fertilizer-pesticide problems, water logging, salinity, soil erosion and desertification. changes caused by agriculture and overgrazing, effects of modern agriculture.

Sustainability and resource conservation: Sustainable development, Sustainable Development Goals, Equitable use of resources for sustainable lifestyles, resource conservation, rain water harvesting, watershed management, wasteland reclamation.

Unit III Ecosystem and Biodiversity

Concept, Structure and functions of ecosystem: Producers, consumers and decomposers, Energy flow in the ecosystem, Food chains, food webs and ecological pyramids.

Ecosystems and ecosystem services: Major ecosystem types in India and their basic characteristics- forests, wetlands, grasslands, agriculture, coastal and marine; Ecosystem services- classification and their significance.

Concept, definition and types of biological diversity (genetic, species and ecosystem diversity). Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic, option values.

Threats to biodiversity, Biodiversity at global, national and local level, Hot-spots of biodiversity. India as a mega-diversity nation, Biogeographical classification of India, Endangered, Threatened and endemic species of India.
Conservation of biodiversity: *In-situ* and *Ex-situ* conservation of biodiversity, Red Data Book.

Unit IV Environmental Issues

Definition. Causes, effects and control measures of: Air, Water, Soil, Marine, Noise, Thermal, Nuclear. Greenhouse gases and their impacts, Climate change, Global warming, Acid rain, Ozone layer depletion, Nuclear accidents and holocaust.

Solid waste management: Generation and management of urban, industrial, biomedical and e-wastes. Waste Management- Concept of 3R (Reduce, Recycle and Reuse).

Environmental Protection Act, Water (Prevention and Control of Pollution) Act, Air (Prevention and Control of Pollution) Act, Wild life protection Act, Forest Conservation Act, Biological Diversity Act.

Social issues: Resettlement and rehabilitation of people: its problems and concerns.

Environmental movements: Chipko, Appiko movement, Silent valley, Big dam movements. Environmental audit and Environmental Impact Assessment.

International agreements: Earth Summits, Convention on Biological Diversity (CBD), Montreal Protocol, Kyoto protocol.

Students should be encouraged to visit places of Environmental Importance including Natural and Manmade Habitat.

Suggested Books and References –

1. Ahluwalia, V. K. (2016) Environmental Studies: Basic concepts. Energy and Resources Institute
2. Asthana, D. K. (2006). Text Book of Environmental Studies. S. Chand Publishing.
3. Basu, M. and Xavier, S. (2016). Fundamentals of Environmental Studies, Cambridge University Press, India
4. Basu, R. N. (Ed.) (2000). Environment. University of Calcutta, Kolkata.
5. Bharucha, E. (2013). Textbook of Environmental Studies for Undergraduate Courses. Universities Press.
6. Fisher, Michael H. (2018). An Environmental History of India- From Earliest Times to the Twenty-First Century, Cambridge University Press.
7. De, A.K. (2006). Environmental Chemistry, 6th Edition, New Age International, New Delhi.
8. Headrick, Daniel R. (2020) Humans versus Nature- A Global Environmental History, Oxford University Press.
9. Jha L. and Shailendra, Environmental Studies, CBH publications, Jaipur
10. Manahan, S.E. (2022). Environmental Chemistry (11th ed.). CRC Press.
11. Rajagopalan, R. (2011). Environmental Studies from Crisis to Cure. Oxford University Press
12. Sharma, P. D. (2005). Ecology and Environment. Rastogi Publications.

13. Singh, J.S., Singh, S.P. and Gupta, S.R. (2006). Ecology, Environment and Resource Conservation. Anamaya Publications.

Course Learning Outcomes:

At the end of the course, students will –

- Gain in-depth knowledge of natural processes and resources that sustain life and govern the economy.
- Develop critical thinking to shape strategies (scientific, social, economic, administrative, and legal) for environmental protection, conservation of biodiversity, protection of natural resources and sustainable development.
- Understand and predict the consequences of human actions on the environment and the quality of human life.
- Acquisition of values and attitudes towards understanding complex environmental economic-social challenges.
- Actively participate in solving current environmental problems and preventing future ones.