Punyashlok Ahilyadevi Holkar Solapur University, Solapur

NAAC Accredited-2022
'B++' Grade (CGPA 2.96)

Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Environmental Science (Minor)

Name of the Course: B.Sc. I Sem. I & II (Liberal Science)
(Syllabus to be implemented from June 2022)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B. Sc. First Year (Liberal Science) Semester-I

MINOR: ENVIRONMENTAL SCIENCE

Teaching Scheme:	**Examination Scheme:**
Lectures – 3 Hours/week, 2 Credits	**UA – 40 Marks**
Practical – 4 Hours/week, 4 Credits	**CIE – 10 Marks**

About Course:

The objective of any programme at Higher Education Institute is to prepare their students for the society at large. The PAH Solapur University envisions all its programs in the best interest of their students and in this endeavor it offers a new vision to all its Under-Graduate courses. It imbibes a Learning Outcome-based Curriculum Framework (LOCF) for all its Under Graduate programs.

The LOCF approach is envisioned to provide a focused, outcome-based syllabus at the undergraduate level with an agenda to structure the teaching-learning experiences in a more student-centric manner. The LOCF approach has been adopted to strengthen students' experiences as they engage themselves in the programme of their choice. The Under-Graduate Programme will prepare the students for both, academia and employability.

Each programme vividly elaborates its nature and promises the outcomes that are to be accomplished by studying the courses. The programs also state the attributes that it offers to inculcate at the graduation level. The graduate attributes encompass values related to well-being, emotional stability, critical thinking, social justice and also skills for employability. In short, each programme prepares students for sustainability and life-long learning.

Environmental Science with its multidisciplinary nature and holistic approach mostly focuses on conservation and management aspects which help for survival of life on earth by understanding and tackling various problems that deteriorate the quality of the environment. Understanding about Environmental Science is becoming ever more necessary for every

person and it is responsibility of all to protect, conserve and restore the quality of our environment by using scientific knowledge.

The new curriculum of B.Sc. (Hons) ENVIRONMENTAL SCIENCE offer essential knowledge and technical skills to study Our Environment in a holistic manner. Students would be trained in all specialized areas of Environmental Science using a unique combination of core and elective papers with significant inter-disciplinary components. Students would be exposed to cutting-edge technologies that are currently used in the study of Earth and Environment, Biotic and Abiotic factors, evolution of flora and fauna and interactions with each other within the ecosystem, needs of biodiversity conservation and advanced technics used in the field of environment. Students would also become aware of the social and environmental significance of wildlife, plants, and their relevance to the national economy.

Scope and Importance:

Environmental Science is broad based and it encompasses a large number of area and major aspects such as Natural Recourses, Ecology and Biodiversity, Environmental pollution and control and Global environmental problems like pollution, climate change, health issues etc. Environmental awareness and education, Environmental legislation and Energy crises.

Applicants wishing to continue their environmental studies might study M.Sc.in Environmental Science further. During this course, candidates acquire environmental science knowledge and abilities. After the training, graduates may have further chances with large income packages from the private, public and government sectors.

1) **Introduction:** This course includes MINOR paper I: **Environment and Society.** This paper will help students to improve their basic knowledge about basics of environment and need of environmental conservation, socio-ecological and environmental issues.
2) **Advantages of Course:** This paper will be helpful to improve their skills in environmental and social field. Practical based paper will be helpful to develop their research and innovative skills & understanding of all the basic loopholes. This paper act as baseline to their next year studies.

Course Prerequisite:
Student shall have knowledge of Environmental Science

Preamble

Course Objectives:

The course examines the relationship between the environment and society enabling the students to understand and appreciate the role played by environment, society, and, their interface in shaping environmental decisions. The students will be enabled to think critically on environmental issues.

Course Outcomes:

1. Fascinating world of Environment and Environmental issues.
2. Hands on Training will help students learn use of environmental equipment's, and instruments, laboratory analysis for the study and solve the environmental problem.
3. Making environment friendly methods, surveys in Practical Records will enhance understanding about environmental issues / problem.
4. Use of Illustrations, Photographs, Charts, Permanent Slides, specimens along with ICT Methods will provide an interesting insight into the beautiful world of flora and fauna.
5. This paper is both informative and interesting and will enable students to learn about Biodiversity not only as a plant or nature lover, but also for higher academic pursuits, particularly in the field of Biological Sciences, Environment and Biodiversity Conservation.
6. Understand about need of EIA, SIA and Environmental – Social Audit in environmental management.
7. Know about environmental laws, acts, policies, rules and important circular's or notices on environmental conservation.

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B. Sc. First Year (Liberal Science) Semester-I

MINOR: ENVIRONMENTAL SCIENCE (Paper-I)

Paper No-I: ENVIRONMENT AND SOCIETY

Teaching Scheme:	**Examination Scheme:**
Lectures – 3 Hours/week, 2 Credits	**UA – 40 Marks**
Practical – 4 Hours/week, 4 Credits	**CIE – 10 Marks**

Unit 1: Introduction to Environment and Environmentalism (15 Lectures)

Objective: To get the knowledge and ideas about the basic concepts of environment, environmentalism, issues in environmentalism, developmental-environmental conflicts.

Outcome: The student can understand and get the knowledge about the basics of environment and conflicts during the developmental activities.

Unit 2: Urbanization, Environment and social inequalities (15Lectures)

Objective: To get the knowledge about the environment, urbanization, social inequalities and community participation.

Outcome: The student can understand urban Environment and social inequalities

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B. Sc. First Year (Liberal Science) Semester-I

MINOR: ENVIRONMENTAL SCIENCE (Paper-I)

Paper No-I: ENVIRONMENT AND SOCIETY

Teaching Scheme:	**Examination Scheme:**
Lectures – 3 Hours/week, 2 Credits	**UA – 40 Marks**
Practical – 4 Hours/week, 4 Credits	**CIE – 10 Marks**

Unit 1: Introduction to Environment and Environmentalism (15 Lectures)

Social and cultural construction of 'environment'; environmental thought from historical and contemporary perspective in light of the concepts of Gross Net Happiness and Aldo Leopold's Land Ethic. Significant global environmental issues such as acid rain, climate change, and resource depletion; historical developments in cultural, social and economic issues related to land, forest, and water management in a global context; interface between environment and society. Development-environment conflict- Developmental issues and related impacts such as ecological degradation; environmental pollution; development-induced displacement, resettlement, and rehabilitation: problems, concerns, and compensative mechanisms; discussion on Project Affected People (PAPs).

Unit 2: Urbanization, Environment and social inequalities (15Lectures)

Urbanization and environment- Production and consumption oriented approaches to environmental issues in Indian as well as global context; impact of industry and technology on environment; urban sprawl, traffic congestion and social-economic problems; conflict between economic and environmental interests. Inequalities of race, class, gender, region, and nation-state in access to healthy and safe environments; history and politics surrounding environmental, ecological and social justice; environmental ethics, issues and possible solutions.

State, corporate, civil society, community, and individual-level initiatives to ensure sustainable development; case studies of environmental movements (Appiko Movement, Chipko Movement, Narmada Bachao Andolan); corporate responsibility movement; appropriate technology movement; environmental groups and movements, citizen groups; role played by NGOs; environmental education and awareness.

References:

1. Chokkan, K.B., Pandya, H. & Raghunathan, H. (eds). 2004. *Understanding Environment*.

1. Sagar Publication India Pvt. Ltd., New Delhi.
2. Elliot, D. 2003. *Energy, Society and Environment, Technology for a Sustainable Future*.
3. Routledge Press.
4. Guha, R. 1989. *Ecological change and peasant resistance in the Himalaya*. Unquiet Woods,
5. Oxford University Press, Delhi.
6. Leopold, A. 1949. *The Land Ethic*. pp. 201-214. Chicago, USA.
7. National Research Council (NRC). 1996. *Linking Science and Technology to Society's*
8. *Environmental Goals*. National Academy Press.
9. Pandit, M.K. 2013. Chipko: Failure of a Successful Conservation Movement. In: Sodhi, N.S.,
10. Gibson, L. & Raven, P.H. *Conservation Biology: Voices from the Tropics.* pp. 126-127. Wiley-Blackwell, Oxford, UK.

(MINOR) PRACTICAL - ENVIRONMENTAL SCIENCE
B. Sc. First Year (Liberal Science) Semester-I

Practical – I : ENVIRONMENTAL SCIENCE

Teaching Scheme:	**Examination Scheme:**
Practical – 4 Hours/week, 4 Credits	**UA – 80 Marks**
	CIE – 20 Marks

List of Practical's: (Minimum 10 Maximum 15)

Students should perform minimum 10 practical during Semester I

List of Practical MINOR paper (based on paper no I):

1. Case study of Chipko Movement
2. Case study of Narmada Bachsav Andolan
3. Case study of Tehri Dam
4. Case study of Appiko Movement
5. Case study of Sardar Valley Project
6. Case study of Jaitapur Nuclear Power Project
7. Case study of Bhopal Gas Tragedy.
8. Case study of Delhi Air pollution
9. Case study of Mumbai metro increase of population
10. Case study of Tajmahal Agra – Air pollution
11. Case study of pesticides in the soft drinks – CSE Report, India
12. Case study of Sand mining in western Maharashtra.
13. Case study Panchganga River – Flood Disaster
14. Case study Soil salinity in Western Maharashtra
15. Case study environmental awareness activities – through government activities e.g. Mazi Vasundhara, Vanomahtsov, Wildlife week celebration etc
16. Field visit to Ecological site, Industrial area, meteorology department, polluted site visits etc.