

Govt. Degree College Nowshera

Department of Environmental Sciences

(Program outcomes, Program specific out comes and course outcomes)

Environmental studies is an interdisciplinary and academic as well as research arena that constitutes and integrate Physical, Chemical, biological, sociological and information sciences to the study of the environment as well as solution required to solve various environment issue. Environmental studies is important for spreading awareness and finding way to protect our environment .We can say that environmental studies is all about learning how we should protect our environment with sustainable strategies . Environmental studies explain cause ,effect and solutions for environmental problems.

The compulsory course on environmental sciences at undergraduate level aim to train students to cater to the need for ecological citizenship through developing a strong foundation on the critical linkages between Environment-Society-Economy. Points describe program outcomes_

1. Critical thinking-Students will demonstrate an understand major concept of environment in association with multidisciplinary subjects Such as physical science, chemical science, biology , social science, earth science etc. Understood the basic concepts , fundamental principles and scientific theories related to various scientific phenomenon and their relevance in day to day life.
2. Social interaction -Development of scientific outlook not only with respect to science subjects but also in all aspects related to life.
3. Ethics- follow the ethical principles and responsibilities to serve the environment and society.
4. Environment and sustainability- understood the issue of environmental contexts and sustainable development.

Program outcomes:

- Acquired fundamental knowledge of different aspects of environmentand local, regional and global environmental problems.
- Acquired knowledge about inter-dependence of living and non-living things and relationships among them.
- Understanding the basic ethics of living and protection of other organisms and their ecological niches viz a viz habitats.
- Acquired a basic understanding of environment and its associated problems viz, air pollution, water pollution and solid waste pollution and their management and control.
- To acquire knowledge of environment and its allied problems and its impact on environmental health.
- To recognise environment as the most valuable and integrate the environment in our activities and business as corporate social responsibility to prevent further deterioration.

Program specific outcomes:

- Understanding the basic concepts of ecology its interactions, niches, habitats through the study of ecology and environment.
- Understanding the different kinds pollutants and their sources, impacts and mitigation.
- Understand the impacts of solid waste, adopt strategies and methods to utilize and manage the waste in an efficient way.
- Understand the different types of environmental problems through the study of climate change and environmental pollution.
- Use different tools and methods to segregate waste and make compost from organic waste.
- Understand the importance of ecosystems, terrestrial, marine and other aquatic ecosystems and aware people about the ecological services and values of ecosystems.
- Gain knowledge about different types of environmental disasters and its mitigation and prevention.

Course outcomes

The environment and ecosystem

- Environment and environmental studies: definition, concept, components and importance.
- Ecosystem: structure and function of ecosystem
- Food chain, food web and ecological pyramids
- Biogeochemical cycles in ecosystem (carbon, nitrogen and phosphorous cycles)
- Ecological succession: definition, types, concept and processes (Hydrosere and Xerosere)

Biodiversity and its conservation

- Definition, concept, levels and values of biodiversity
- Biodiversity of India, India as a mega diversity nation. Hotspots of biodiversity.
- Threats of biodiversity (habitat loss, poaching of wildlife and man wildlife conflict)
- Conservation of biodiversity: in-situ conservation; ex-situ conservation.
- Ecotourism, concept of protected areas network with special reference to Kishtwar National Park, Hemis National Park and Dachigam National Park

Natural resource and their conservation

- forest resources: uses and over exploitation of forests and consequences of deforestation.
- Water resources: uses and consequences of over-utilization, concept of rain water harvesting and watershed management, water conflicts.
- Food resources: sources of food and impacts of modern agriculture on environment (fertilizers, pesticide problem, water logging and salinization).
- Energy resources: renewable and non-renewable energy sources, growing energy demands and alternate energy sources.
- Land resources: global land use pattern, soil erosion, desertification, waste land reclamation.

Environmental pollution and disaster management

- Air pollution, causes, effects and control
- Water pollution causes and control

- Radiation pollution causes and control and nuclear hazards.
- Solid waste management: causes, effects and control.
- Global warming, ozone layer depletion- causes, effects and control.
- Acid rain cause, effects and control.
- Types and management of natural disasters (earthquakes, floods and landslides)

Environmental and human health

- Human population growth and family welfare program.
- Common diseases: air borne disease(tuberculosis, influenza) water borne (cholera, hepatitis) food borne diseases (salmonellosis, botulism) and vector borne disease (malaria, dengue).
- HIV/AIDS: symptoms, causes, prevention.
- Role of IT in environment and human health.

Environmental treaties and laws

- Environmental treaties: Montreal and Kyoto protocol.
- Silent features of following acts: wildlife protection act 1972.
- Water prevention and control act 1974
- Air prevention and control act 1981.
- Forest conservation act 1980
- Environmental protection act 1986
- National green tribunals: structure and functions.
- Environmental ethics
- Sustainable development.