**Subject: Environmental science**

**(program outcomes, program specific out comes and course outcomes)**

**Program outcomes:**

* Acquired fundamental knowledge of different aspects of environment and 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, inches, 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 an 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.