

Environmental Science

Environmental Chemistry: Composition and structure of atmosphere, hydrosphere and lithosphere; biogeochemical cycles (carbon, nitrogen, phosphorus, sulphur); chemical processes in air, water and soil; environmental contaminants and their fate; acid rain; ozone depletion; greenhouse gases; principles of pollution chemistry.

Ecology and Ecosystems: Structure and function of ecosystems; energy flow; food chains and food webs; ecological succession; population ecology; biodiversity and conservation; ecosystem services; terrestrial and aquatic ecosystems; ecological indicators.

Environmental Pollution and Control: Sources, types and impacts of air, water and soil pollution; air pollutants and atmospheric processes; water quality parameters; wastewater treatment processes; solid waste management; hazardous and biomedical waste management; noise pollution and control; pollution monitoring techniques.

Climate Change and Global Environmental Issues: Climate system; greenhouse effect and global warming; climate variability; impacts of climate change on ecosystems, water resources, agriculture and human health; mitigation and adaptation strategies; international climate policies and agreements.

Environmental Management: Environmental impact assessment (EIA); environmental auditing; environmental risk assessment; sustainable development principles; environmental management systems; environmental policies and legislation in India.

Natural Resource Management: Forest, water, land and mineral resources; watershed management; soil conservation; sustainable agriculture; biodiversity conservation; ecosystem restoration.

Remote Sensing and GIS Applications: Fundamentals of remote sensing; satellite data interpretation; geographic information systems; spatial data analysis; applications in environmental monitoring, climate change studies and disaster management.

Disaster Management: Types of natural and anthropogenic disasters; hazard, vulnerability and risk assessment; disaster preparedness and mitigation; early warning systems; disaster response and recovery; climate-related disasters such as floods, droughts and cyclones.