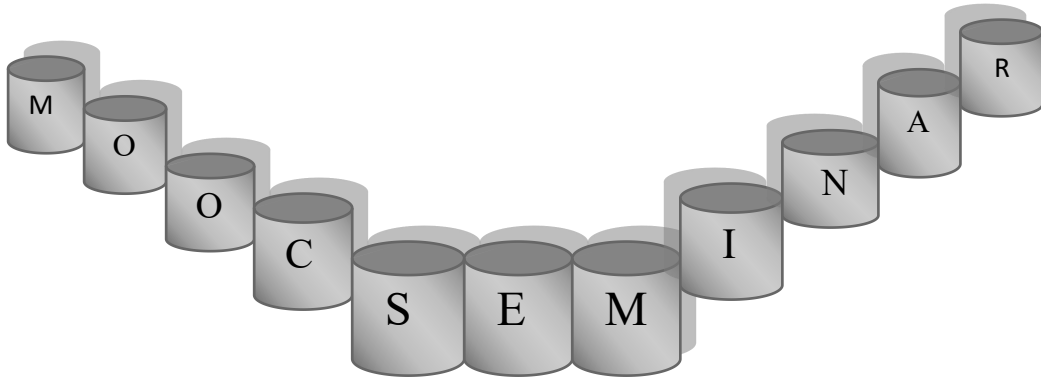


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NAME

BABITA KARMIYAL

COURSE-BCA

ONLINE COURSE NAME-
**SR.SECONDARY :ENVIRONMENT
SCIENCE**



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I N D E X

WEEK	NAME OF THE LESSON
WEEK 1	L1:ORIGIN OF EARTH AND EVOLUCATION OF THE ENVIRONMENT L2:ENVIRONMENT AND SOCIETY
WEEK2	L3:DEGRADATION OF NATURAL ENVIRONMENT
WEEK3	L4:PRINICIPLE OF ECOLOGY
WEEK4	L5:ECOSYSTEM
WEEK5	L6:NATURAL ECOSYSTEM L7:HUMAN MODIFIED ECOSYSTEM
WEEK 6	L8:HIUMAN SOCIETY L9:DEFORESTATION
WEEK7	L10:ENVIRONMENTAL POLLUATION
WEEK8	L11:ENVIRONMENTAL AND HEALTH
WEEK9	L12:DISASTERS AND THEIR MANAGEMENT
WEEK10	L13:NATIONAL ENVIRONMENTAL ISSUES
WEEK11	L14:GLOBAL ENVIRONMENTAL ISSUE
WEEK12	L15:BIODIVERSITY CONSRVATION
WEEK13	L16:CONSERVATION OF OTHER NATURAL RESOURCE L17:CONSERVATION OD SOIL AND LAND
WEEK14	L18:WATER AND ENERGY CONSERVATION
WEEK15	L19:ORIGIN AND CONCEPT OF SUSTAIBNABLER DEVELOPMENET
WEEK16	L20:MODERN AGRICULTURE L21:CONCEPT OF SUSTAINABLE AGRICULTURE
WEEK17	L22:CLEANER TECHNOLOGY
WEEK18	L23:ENVIRONMENT LEGISLATION
WEEK19	L24:ENVIRONMENT IMPACT ASSESSMENT
WEEK20	L25:ENVIRONMENT RELATED INSTITIONS AND ORGANISATION
WEEK21	L26:ENVIRONMENT ETHICS AND GANDHIAN APPROACH
WEEK22	L27A:GLOBAL CIRCULATION OF WATER L27B:IMPORATNCE OF ENERGY IN SOCIETY
WEEK23	L28A:GLOBAL WATER RESOURCE L28B:NON-RENEWABLE SOURCE OF ENERGY
WEK24	L29A:FRESH WATER RESOURCE L29B:RENEWABLE SOURCE S OF ENERGY
WEEK25	L30A:METHODS OF WATER HARVESTING L30B:RENEWABLE SOURSCES OF ENERGY=II
WEEK26	L31A:WATER CONSERVATION OF DIFFERENT LEVELS L31B:ENERGY CONSVATION

INTRODUCTION

Environmental Science is an interdisciplinary academic field that integrates physical, biological and information sciences including but not limited Ecology, Biology, Physics, Chemistry, Zoology, Mineralogy, Oceanology, Limnology, Soil Science, Geology etc. to the study of the environment and solution of environmental problems. Environmental Sciences emerged from the field of natural history and medicine during the enlightenment.

Environmental Science assesses the impact of human activity on the global environment and develop scientific, risk-based solutions to help secure and sustainable global environment. It encompasses both the biological and the earth sciences.

The course covers all the major components of the environment including origin and evolution of earth and life, natural resources, ecological principles and population dynamics, pollution, wildlife conservation and impact of individualization. In addition, it also addresses related some economic, cultural and ethical aspects which are important to ensure a sustainable future for humans. This course also provides information related to Environmental issues related to sustainable livelihood and human welfare.

Some important topics includes in Environmental Science Senior Secondary course as follows:

1. Origin, Evolution and its uses by humans
2. Principles of Ecology
3. Human settlement and their impact on environment
4. (a) Environmental Pollution and Natural Disasters
(b) National and Global Environmental Issues
5. Conservation of biodiversity and other natural resources
6. Sustainable development with regards to agriculture and cleaner technology
7. Environmental Management (ethics, legislation and organization related to environment)
8. (a) Water Resource Management
(b) Energy and Environment

WEEK1 :

ORIGIN OF EARTH AND EVOLUTION OF THE ENVIRONMENT

The earth broke off **about 4.5 billion years ago with an explosion**. It was a burning hot white mass of gas and dust. Over a long period of time, dust and gas gradually condensed to form solid rock. Such condensation and shrinking made the earth heat up so much that the rock melted into a gluey liquid.

ENVIRONMNT AND SOCITY

Societies **adapt and transform the environments they inhabit**. They depend upon the use of resources and reduction of hazards for their survival and material well-being. They also assign meanings to the environment that vary over place and time, but that help define their identity and values within the world

WEEK 2:

L3:DEGRADATION OF NATURAL ENVIRONMENT

Environmental degradation is a **process through which the natural environment is compromised in some way**, reducing biological diversity and the general health of the environment. This process can be entirely natural in origin, or it can be accelerated or caused by human activities.

WEEK 3:

L4:PRINCIPLES OF ECOLOGY

It states that **production is to be based on ecological processes, and recycling**. Nourishment and well-being are achieved through the ecology of the specific production environment

WEEK 4:

L5:ECOSYSTEM

An ecosystem is **a geographic area where plants, animals, and other organisms**, as well as weather and landscape, work together to form a bubble of life. Ecosystems contain biotic or living, parts, as well as abiotic factors, or nonliving parts. Biotic factors include plants, animals, and other organisms.

WEEK 5:

L6: NATURAL ECOSYSTEM

A natural ecosystem is **a community of living and non-living entities and occurs freely in nature.** ... The components of natural ecosystems that bring about these interactions are soil, sunlight, air, water, plants, animals and microorganisms.

L7: HUMAN MODIFIED ECOSYSTEM

For thousands of years, humans have modified the physical environment **by clearing land for agriculture or damming streams to store and divert water.** ... While these modifications directly impact the local environment, they also impact environments farther away due to the interconnectivity of Earth's systems.

WEEK 6:

L8:HUMAN SOCIETIES

Humane Society International works around the globe to **promote the human-animal bond, rescue and protect dogs and cats**, improve farm animal welfare, protect wildlife, promote animal-free testing and research, respond to natural disasters and confront cruelty to animals in all of its forms.

L9:DEFORESTATION

Deforestation refers to **the decrease in forest areas across the world** that are lost for other uses such as agricultural croplands, urbanization, or mining activities. Greatly accelerated by human activities since 1960, deforestation has been negatively affecting natural ecosystems, biodiversity, and the climate

WEEK 7:

L10:ENVIRONMENTAL POLLUTION

Any unnatural and negative changes in all the dimensions like chemical, physical and. biological characteristics of any component of the ecosystem i.e. air, water or soil which can cause harmful effects on various forms of life and property is called environmental pollution.

WEEK 8:

L11:ENVIRONMENTAL AND HEALTH

Environmental Health is the **branch of public health** that focuses on the interrelationships between people and their environment, promotes human health and well-being, and fosters healthy and safe communities.

WEEK 9:

L12:DISASTER AND THEIR MANAGEMENT

Disaster Management can be defined as **the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies**, in particular preparedness, response and recovery in order to lessen the impact of disasters.

WEEK 10:

L13:NATIONAL ENVIRONMENTAL ISSUES

Air pollution, poor management of waste, growing water scarcity, falling groundwater tables, water pollution, preservation and quality of forests, biodiversity loss, and land/soil degradation are some of the major environmental issues India faces today

WEEK 11:

L14:GLOBAL ENVIRONMENTAL ISSUES

- 1 Global Warming. ...
- 2 Ozone Depletion and Destruction. ...
- 3 Sharp Decrease of Forest Cover. ...
- 4 Declining of Biological Diversity. ...
- 5 Acid Rain Pollution. ...
- 6 Land Desertification. ...
- 7 Marine Pollution and Damage. ...
- 8 Water Pollution and Freshwater Resource Shortage

WEEK 12:

L15:BIODIVERSITY CONSERVATION

Biodiversity conservation is **the protection and management of biodiversity to obtain resources for sustainable development**. Biodiversity conservation has three main objectives: ... Sustainable utilization of species and ecosystem. To maintain life-supporting systems and essential ecological processes.

WEEK 13:

L16: CONSERVATION OF OTHER NATURAL RESOURCE

Earth's natural resources include air, minerals, plants, soil, water, and wildlife. ... Conservation seeks **the sustainable use of nature by humans**, for activities such as hunting, logging, or mining, while preservation means protecting nature from human use.

L17: CONSERVATION OF SOIL AND LAND

The key goal of soil conservation is **protecting it from degradation in any way**, including depletion of fertility and erosion. The main task in reducing erosion is to cover lands with crops or residues to avoid bare areas since they are highly subject to disruption due to winds, the flow of water, and rain splashes

WEEK 14:

L18: WATER AND ENERGY CONSERVATION

By reducing the need to pump, treat, and distribute water and wastewater, water conservation measures can offer **real energy savings** for the utilities. ... Measures that save customers electricity and/or natural gas can provide significant financial savings on customers' energy bills.

WEEK15:

L19:ORIGIN AND CONCEPT OF SUSTAINABLE DEVELOPMENT

THE CONCEPT OF SUSTAINABLE DEVELOPMENT FORMED **THE BASIS OF THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT HELD IN RIO DE JANEIRO IN 1992**. ... SUSTAINABLE DEVELOPMENT WAS THE SOLUTION TO THE PROBLEMS OF ENVIRONMENTAL DEGRADATION DISCUSSED BY THE BRUNDTLAND COMMISSION IN THE 1987 REPORT OUR COMMON FUTURE.

WEEK 16:

L20:MODERN AGRICULTURE

Modern agriculture is an **evolving approach to agricultural innovations and farming practices** that help farmers increase efficiency and reduce the number of natural resources like water, land, and energy necessary to meet the world's food, fuel, and fiber needs.

L21:CONCEPT OF SUSTAINABLE AGRICULTURE

The concept of sustainable agriculture (SA) can be described as a **system of ecological farming practices**, which is based on scientific innovations through which it is possible to produce healthy foods with respect for the land, air, water, and farmers' health and rights.

WEEK 17:

L22: CLEANER TECHNOLOGY

Clean technology refers to **measures taken to reduce or eliminate at the source of production any nuisance, pollution, or waste**, and to help save raw materials, natural resources, and energy, thereby increasing performance, productivity, or efficiency by minimizing negative effects on the environment

WEEK 18:

L23: ENVIRONMENTAL LEGISLATION

Environmental legislation is the **collection of laws and regulations pertaining to air quality, water quality, the wilderness, endangered wildlife and other environmental factors**. ... The act ensures that matters important to the environment are thoroughly considered in any decisions made by federal agencies.

WEEK19:

L24: ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment (EIA) is **a process of evaluating the likely environmental impacts of a proposed project or development**, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

WEEK20:

L25: ENVIRONMENTAL RELATED INSTITUTIONS AND ORGANISATIONS

- United Nations Environment Programme (UNEP)
- Earth System Governance Project (ESGP)
- Global Environment Facility (GEF)
- Global Green Growth Institute.
- KIMO (Local Authorities International Environmental Organisation)
- Intergovernmental Panel on Climate Change (IPCC)
- International Union for Conservation of Nature (IUCN)

WEEK21:

L26:ENVIRONMENTAL ETHICS AND GANDHIAN APPROACH

Environmental ethics is the part of philosophy which **considers** the ethical relationship between human beings and natural environment. We must learn to respect nature, all living creatures and remember that our resources are finite. ... Gandhian philosophy promotes the **concept to co-existence with nature**.

WEEK22:

L27A:GLOBAL CIRCULATION OF WATER

Global Ocean Circulation. Ocean circulation is the **large scale movement of waters in the ocean basins**. Winds drive surface circulation, and the cooling and sinking of waters in the polar regions drive deep circulation. Surface circulation carries the warm upper waters poleward from the tropics.

L27B: IMPORTANCE OF ENERGY IN SOCIETY

Energy is essential for most activities of modern society. Its use or consumption is generally **taken as an index of standard of living**. We use energy in the form of fire wood, fossil fuels and electricity to make life comfortable and convenient. ... Large amount of energy is consumed in agriculture and industry.

WEEK 23:

L28A: GLOBAL WATER RESOURCES

Water returns to the earth's surface by precipitation. ... On land, some of this water flows over the surface in streams and rivers into lakes, reservoirs and the oceans. The remainder infiltrates the land surface and percolates into aquifers. Some water can enter aquifers directly from the oceans.

L28B : NON-RENEWABLE SOURCES OF ENERGY

There are four major types of non renewable resources: **oil, natural gas, coal, and nuclear energy**. Oil, natural gas, and coal are collectively called fossil fuels. Fossil fuels were formed within the Earth from dead plants and animals over millions of years—hence the name “fossil” fuels

WEEK24:

L29A:FRESH WATER RESOURCES

Natural sources of fresh water include **surface water, under river flow, groundwater and frozen water**. Artificial sources of fresh water can include treated wastewater (reclaimed water) and desalinated seawater. Uses of water include agricultural, industrial, household, recreational and environmental activities.

L29B :RENEWABLE SOURCES OF ENERGY -I

- Solar Power.
- Wind Power.
- Biomass Energy.
- Hydro Power.
- Geothermal Energy.
- Tidal Energy.

WEEK25:

L30A:METHODS OF WATER HARVESTING

- Surface runoff harvesting. In urban area rainwater flows away as surface runoff. ...
- Rooftop rainwater harvesting. It is a system of catching rainwater where it falls. ...
- Rooftop Rainwater Harvesting System. ...
- Catchments. ...
- Transportation. ...
- First Flush. ...
- Filter. ...
- Sand Gravel Filter.

L30B:RENEWABLE SOURCES OF ENERGY-II

The most popular renewable energy sources currently are:

- Solar energy.
- Wind energy.
- Hydro energy.
- Tidal energy.
- Geothermal energy.
- Biomass energy.

WEEK26:

L31A:WATER CONSERVATION OF DIFFERENT LEVELS

Storage of water by construction of various water reservoirs have been one of the oldest measures of water conservation. ... Contour farming is an example of such harvesting technique involving water and moisture control at a very simple level. It often consists of rows of rocks placed along the contour of steps.

L31B:ENERGY CONSERVATION:

Energy conservation is the effort made to reduce the consumption of energy by using less of an energy service.

CONCLUSION:

Our **natural environment makes human life possible**, and our cultural environment helps define who we are. It is therefore essential that our population and economic growth are environmentally sustainable. As this essay reveals, **environmental education has become a critical issue**. In addition to individuals and governmental bodies, associations and learned societies have taken up the cause and published directories and handbooks about environmental education.

THANK YOU