

[Environmental Studies]

Programme(s) in which it is offered: All UG programmes

Course Category: AECC	Schedule of Offering: Odd
Course Credit Structure: 3	Course Code: EGE1142
Total Number of Hours: 60	Contact Hours Per Week: 4
Lecture: 2	Tutorial: 0
Practical: 2	Medium of Instruction: English
Date of Revision:	Skill Focus: Life Skills
Short Name of the Course: EVS	Course Stream NA
Grading Method: Pass/Fail,	Repeatable: Credit
Course Level: Beginner	

Course Description

The need for sustainable development is a key to the future of mankind. Keeping this mind this course is designed to help the student to perceive and understand the importance of environment environmental issues such as pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity. The course will equip the students to devise innovative & nature friendly solutions to have peaceful coexistence of human beings with nature, and to become the ambassadors of change in the modern globalised world.

Course Introduction

Environmental Science is the field that studies the interactions of the physical, chemical, and biological components of the environment and the relationships and effects of these components with the organisms in the environment. The field of environmental science can be divided into three main goals, first is to learn how the natural world works, second is to understand how we as humans interact with the environment and the third is to determine how we affect the environment and finding ways to counterbalance the effects and affects.

Course Objective

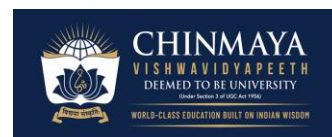
- Demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues.
- Develop awareness and concern for environment issues and sustainable development.
- Impart awareness among the students for the preservation of environment to provide safe and healthy atmosphere for future generations.
- Demonstrate the ability to locate, interpret and apply focused environmental solution to the environmental issues.
- Assess the impact of the human activities on the environment and measures to combat them

Course Outcome

- Possess Ecological consciousness

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- Develop environmental ethics and social responsibilities of individuals towards nature.
- Formulate an action plan for sustainable alternatives that integrate science, humanist, and social perspectives.

PO-CO Mapping

PO-CO Mapping Matrix

CO/PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6
CO1						
CO2						
CO3						
CO4						
CO5						

Prerequisites and other constraints

- i. Basic knowledge about Environment and human impact on it and general understanding regarding sustainability, recycling and impacts on environment

Pedagogy

Lecture, Case studies, Documentary analysis, Group Discussions and projects

Suggested Reading:

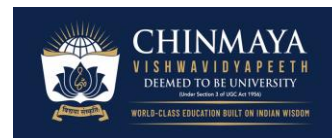
- World Commission on environment and Development. 1987. Our Common Future. Oxford University Press.
- R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House
- R. Rajagopalan (2019) Environment & Ecology, Oakridge publication

Evaluation Pattern

Evaluation Matrix

	Component Type	Weightage Percentage	Total Marks	Tentative Dates	Course Outcome Mapping
Continuous Internal Assessment (CIA) Components*	Assignment	30% of CIA	9	First and Third Week	1&2
	Case studies	20% of CIA	6	Second Week	2&3
	Quiz	20% of CIA	6	4 th Week	1&2
	Field Work	30% of CIA	9	Last three weeks of the course	1,2,&3
	CIA Marks	30%	30		
ESE		70%	70		

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Module Sessions

Module 1: Introduction to environmental studies

(4 Hours)

- Multidisciplinary nature of environmental studies
- Concept of sustainability and sustainable development
- Components of environment - atmosphere, hydrosphere, lithosphere and biosphere.
- Scope and importance;

Reading:

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

Activities:

Documentary analysis, Article review

Module 2: Ecosystems

(6 Hours)

What is an ecosystem? Structure and function of ecosystem;

Energy flow in an ecosystem:

food chain, food web and ecological succession. Case studies of the following Ecosystems:

- a) Forest ecosystem
- b) Grassland ecosystem
- c) Desert ecosystem
- d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Reading:

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

Activities:

Documentary analysis, Case studies

Module 3: Natural Resources: Renewable and Non-renewable Resources

(8Hours)

- Land Resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Heating of earth and circulation of air; air mass formation and precipitation.
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

Readings:

World Commission on environment and Development. 1987. Our Common Future. Oxford University Press.

R. Rajagopalan (2019) Environment & Ecology, Oakridge publication

Activities

Case studies, Film analysis

Module 4: Biodiversity and Conservation

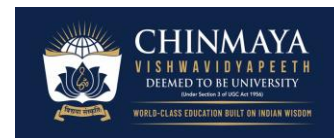
(10 Hours)

Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hotspots

- India as a mega-biodiversity nation; Endangered and endemic species of India

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- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Reading:

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

Activities:

Documentary analysis, Case studies

Module 5: Environmental pollution

(8Hours)

- Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution - case studies.

Reading:

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

R. Rajagopalan (2019) Environment & Ecology, Oakridge publication

Activities:

Documentary analysis, Case studies

Module 6: Environmental Policies & Practices

(10 Hours)

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC).
- Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context

Reading:

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

Activities:

Documentary analysis, Article review

Module 7: Human Communities and the Environment

(8 Hours)

- Human population and growth: Impacts on environment,
- human health and welfares.
- Carbon foot-print.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquakes, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

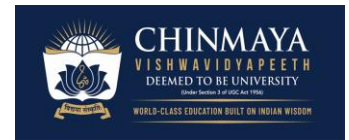
Reading:

D.K Asthana (2019) Environment studies, S. Chand Publishers

R. Rajagopalan (2019) Environment & Ecology, Oakridge publication

R. Rajagopalan (2018), Environment Studies: from crisis to cure, Oxford Publishing House

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Activities:
Documentary analysis, Case studies

Unit 8: Field work (Equal to 6 hours)

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
 - Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.
 - Study of common plants, insects, birds and basic principles of identification.
 - Study of simple ecosystems-pond, river, Delhi Ridge, etc.
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