

Choice Based Credit System (CBCS)

NOWGONG COLLEGE (AUTONOMOUS)



SYLLABUS

ENVIRONMENTAL STUDIES

**Learning Outcomes-based Curriculum Framework (LOCF)
of
Undergraduate Programme**

ABILITY ENHANCEMENT COMPULSORY COURSE

B.A. / B. Sc. / B. Com (Honours/Regular)

(Effective from Academic Year 2020-21)

Approved in Academic Council, Nowgong College (Autonomous)

Introduction to the Programme

Environment literally means ‘surrounding’ on which we are directly or indirectly dependent for our survival. Environmental studies are the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment. The U.N Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic and productivity and national security, global warming, depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues.

To accomplish the objectives for a healthy environment on Earth, the Honourable Supreme Court directed to UGC to introduce a basic course on environment at every level of college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all Universities/Colleges of India. The experts committee appointed by the UGC has looked into all the pertinent questions, issues and other relevant matters. This was forwarded by framing the core module syllabus for environmental studies for undergraduate courses of all branches of Higher Education. Hence, The Environmental Studies is introduced in 2nd Semester with 4 credits in undergraduate programme of B.A, B. Com. And B. Sc. The success of this course will depend on the initiative and drive of the teachers and the respective students.

Programme objectives

According to UNESCO (1971), the objectives of environmental studies are: -

- (a) Creating the awareness about environmental problems among people.
- (b) Imparting basic knowledge about the environment and its allied problems.
- (c) Developing an attitude of concern for the environment.
- (d) Motivating public to participate in environment protection and environment improvement.
- (e) Acquiring skills to help individuals in identifying and solving environmental problems.
- (f) Striving to attain harmony with nature.

Programme Structure

Environmental Studies is compulsory to all the students in 2nd semester of degree programme as Ability Enhancement Compulsory Course (AECC) with paper code ENST-AEC-2014

It is aligned with CBCS structure as –

Honours & Regular Courses		Credits		
Ability Enhancement Course	Environmental Studies	Theory with practical		
		Theory	Practical	Total
		3	1	4

8. Teaching Learning Process

The teachers and students engaged in the course are primarily responsible for the knowledge on environmental studies. Tutorial and practice related instructions are provided along with various teaching methods for exposure of students to day-to-day environment issues. There shall be 60 instructional days excluding examination in the semester.

PAPER CODE: ENST-AEC-2014

ENVIRONMENTAL STUDIES

PAPER CREDIT: 04 (3T+1P)

Total no. of Lectures: 45+15 (L+P)

Total Marks: 100 (T80+ P20)

Objectives

Learning outcomes:

UNIT 1: Students will be come to know about Environment, its scope, importance and needs of the subject and create public awareness.

UNIT 2: Students will know about the various natural resources like land, forest, coal, petroleum etc., the causes and consequences related to their degradation along with their sustainable utilization.

UNIT 3: Students will come to know about the ecosystems and the role played by each organism to maintain the ecosystems.

UNIT 4: Students will understand the values of biodiversity and the different bio-geographic zones of the country. They will gain knowledge about the conservation and threats to biodiversity loss.

UNIT 5: Students will know about the problems caused by pollution and knowledge about how to resolve it.

UNIT 6: Students will know about the different Social and Environmental Issues, Policies and Action plans and how to practice it in the society.

UNIT 7: Students will know about the different Environmental problems as well as they will be able to create public awareness in the society.

UNIT 8: Through field study students will observe different case studies of the environmental issues of their surroundings.

CONTENTS

UNIT 1: (2 lectures)

Introduction to Environmental Studies

Scope, Importance and Multidisciplinary nature of environmental studies; Concept of sustainable

Development and need for public awareness.

UNIT 2: (8 lectures)

Natural Resources: Renewable and Non-renewable Resources

- Forest resources: Deforestation: Causes and impacts due to mining, Construction of big dams and their effects on forests and people.

- Water resources: Use and over-exploitation of surface and ground water, Floods, Droughts,

Conflicts over water (International & Inter-state: Indo-China, Indo-Bangladesh, Cauveri disputes, dams).

- Land resources: Land use change; land degradation, soil erosion and desertification.

- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies – coal mining, crude oil extraction.

UNIT 3: (7 lectures)

Ecosystems

Definition, structure, types and function of ecosystem: Energy flow in an ecosystem: food chains, food web and ecological succession. Case studies of the following ecosystems:

a) Forest ecosystem b) Grassland ecosystem

c) Aquatic ecosystems (ponds and rivers) d) Mountain ecosystem

UNIT 4: (7 lectures)

Biodiversity and Conservation

Definition, Levels of biological diversity

Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots.

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

Threats to biodiversity (Natural and Human intervention).

Conservation of biodiversity: In-situ and Ex situ conservation.

Values of Biodiversity; Ecosystem services.

UNIT 5: (6 lectures)

Environmental Pollution

- Environmental pollution (Air, water, soil and sound); types, causes, effects and controls.
- Nuclear hazards and human health risks.
- Solid waste management: Control measures of urban and industrial waste.
- Role of an individual in prevention of pollution.
- Pollution case studies – Morikolong, Kolang river.

UNIT 6: (7 lectures)

Social and Environmental Issues, Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on biodiversity, human communities and agriculture.
- Environmental Laws: International agreements, policies and treaties: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Environmental Protection Act; Air (Prevention & control of Pollution) Act; Water (Prevention and control of pollution) Act; Wild life Protection Act; Forest Conservation Act; Green Tribunal Act (2010); CITES.
- Protection to natural wealth, Tribal populations and Rights, Human Wildlife Conflicts with special reference to Assam.

UNIT 7: (8 lectures)

Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare; Women and Child Welfare.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko Movement, Silent valley, Narmada Bachao, Over drilling of Dibru Saikhuwa.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.

- Environmental communication and public awareness, case studies (CNG, electric vehicles, green energy, waste minimization & management - 3R).

UNIT 8: (Equivalent to 15 lectures)

Field work/Project (Compulsory)

- Innovative Projects on - waste minimization, management of health hazards, conservation of biodiversity, protection of environment.
- Visit to an area to document environmental issues/assets: river/forest/flora/fauna etc.
- Visit to a local polluted site - urban/rural/industrial/agricultural.
- Study of common plants, insects, birds and animals.
- Study of simple ecosystems- pond, river, stream of locality.

SUGGESTED READINGS:

1. Dr. P. D. Sharma, Ecology & Environment. Rastogi Publications. Meerat, UP
2. Rajagopalan, R. (2018). Environmental Studies. (3rd Edition) Oxford University Press
3. R. K. Khatoliya: Environmental Pollution (2014). S. Chand & Company Pvt. Ltd. New Delhi.
4. D. K. Asthana & M. Asthana (2009). Environment: Problems and Solutions. S. Chand & Company Pvt. Ltd. New Delhi.
5. Manideep Raj (2019). Principles of Ecology. Kalyani Publishers. India.
6. Nabanita Dutta Bordoloi. Poribekh Adhyayan (Environmental Studies). Shanti Prakashan, Panbazar, Guwahati.
7. Selim Ali (2002) 13th Edition. The Book of Indian Birds. Bombay Natural History Society. Oxford University Press.
8. Farishta Yasmin and Saurav Kumar Baruah (2016). Green Urban Biodiversity. Nowgong College Publication, Assam, India.
9. Dimbeswar Chaliha (2005) Maas: Nana Dish Nana Katha. Banalata, Dibrugarh and Guwahati, Assam.
10. Soumyadeep Dutta (2011). Axamer charai prajyabekshanar hatputhi. Banphool Prakashan, Guwahati, Assam.
11. Bijnan Jeuti: An Assamese bi-monthly science magazine published by Assam Science Society, Guwahati.
12. Prantik: An Assamese fortnightly multi-topic magazine published from Guwahati, Assam.
