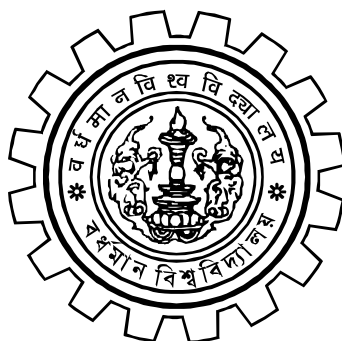


THE UNIVERSITY OF BURDWAN



SYLLABUS FOR 3-YEAR DEGREE/4-YEAR HONS.

IN

ENVIRONMENTAL SCIENCE

Under

Curriculum and Credit Framework for Undergraduate

Program (CCFUP), as per N.E.P. 2020)

w.e.f 2023 – '24

SEMESTER- I
PAPER CODE: ENVSC 1031 [ENVSC Multidisciplinary: COURSE NO. 1]
NATURAL RESOURCES & SUSTAINABLE DEVELOPMENT

TOTAL CREDITS: 3

TIME: 2 Hours

MARKS: 40

Lecture: 40

Learning objectives

- *Explain the fundamentals of natural resources and their distribution*
- *Present available natural resources.*
- *Describe the judicial uses of natural resources*
- *Outline & basic elements of sustainable development*

Unit 1: Natural resources

Overview of natural resources: Definition of resources; Classification of natural resources – biotic and abiotic, renewable and non-renewable 5

Unit 2: Biotic and water resources

Major types of biotic resources: Forests, Grasslands, Wildlife and Aquatic

Types of water resources: Freshwater and marine water resources; Availability and use of water resources; Conflicts over water resource – International and National perspectives 10

Unit 3: Soil and mineral resources

Soil types and distribution in India; Major degradation of soil; Major minerals in India; Over exploitation and environmental problems 5

Unit 4: Energy resources

Types of energy sources; Renewable resources (Solar, Hydro, Ocean and biomass); Non-renewable sources (Coal, Petroleum and Nuclear resources) 10

Unit 5: Sustainable Development

Concept, SDGs – Goals, Targets & Indicators; Challenges & strategies of SDGs in India 10

Learning outcome (After completion of this unit students would be able to:)

- *Understand the concept of natural resources; identify types of natural resources, their distribution and use with special reference to India*
- *Discuss the factors affecting the availability of natural resources, their conservation and management*
- *Explain sustainable development, its goal, targets, challenges and Indian strategies for SDGs*

Proposed faculty involvement

Unit 1 & 2: Social Science/ Botany/ Zoology

Unit 3: Geography/ Botany/ Zoology/ History

Unit 4: Geography/ Social Science/ Physics

Unit 5: Political Science/Social Science

SEMESTER- II
PAPER CODE: ENVSC 2031 [ENVSC Multidisciplinary: COURSE NO. 1]
BIODIVERSITY CONSERVATION AND ECOTOURISM
TOTAL CREDITS: 3

TIME: 2 Hours

MARKS: 40

Lecture: 50

Course objectives

- *Concept of biodiversity*
- *Factors affecting biodiversity*
- *Understanding the major conservation policies*
- *Getting knowledge on ecotourism with home-stay tourism approach*

Unit 1: Biodiversity & its distribution

Definition & Concept of biodiversity, levels and types of biodiversity; Biodiversity in India and the world; Biodiversity hotspots and Megadiversity countries 15

Unit 2: Threats to biodiversity

Types & causes of biodiversity loss - Land use and Land cover changes, commercial exploitation of species, invasive species, fire, disaster and climate change 10

Unit 3: Conservation policies

Importance & major policies – in situ and ex situ conservation; Major protected areas; National & International instruments for biodiversity conservation; Role of traditional knowledge for conservation; Community-based conservation, concept of Zoo management 15

Unit 4: Tourism & Leisure

Types of Tourism; Ecotourism – Concept, Growth and Developments; Impacts and management of ecotourism; Home stay tourism 10

Learning outcome (After completion of this unit students would be able to:)

- *Understand the concepts of biodiversity and conservation*
- *Understand the factors impacting biodiversity loss in India and the World*
- *Major conservation strategies taken in India*
- *Ideas on ecotourism with special emphasis on home-stay tourism*

Proposed faculty involvement

Unit 1 & 2 & 3: Social Science/ Botany/ Zoology/ Political Science/ History

Unit 4: Management/ Economics/ Commerce/ Humanities subjects

SEMESTER- III

**PAPER CODE: ENVSC 3031 [ENVSC Multidisciplinary: COURSE NO. 3]
CLIMATE CHANGE & CLIMATE ACTION**

TOTAL CREDITS: 3

TIME: 2 Hours

MARKS: 40

Learning objectives

Lecture: 50

- Explain the fundamentals of climate change science
- Present the international climate change legal and policy framework and explain key issues under negotiation
- Describe the expected consequences of climate change and the role of adaptation
- Provide a rationale for climate change mitigation and propose actions in key sectors
- Outline basic elements of planning processes to deliver climate change action

The Science of climate change: Atmosphere of the Earth; Global temperature – Past and present trend, Green house effects; Global energy balance: Greenhouse gases and aerosols; its effects on global warming **15**

Climate change and its effects: Impact of climate change on the perspective of biodiversity, ocean, natural hazards, health risk, food supply, poverty, environmental refugee **10**

Climate action: climate change - adoption, Vulnerability assessment-IPCC Framework (AR5 and AR6); Identifying and selecting adaptation option, linking adaptation and development Planning **10**

Policy and mitigation: Policy approaches for mitigation and Low Carbon Development; Role of National and Sectorial Institutions in climate change planning, National Action Plan on Climate Change **15**

Learning outcome

After completion of this course students should learn about -

- Fundamentals of climate change science as well as know-how of the equipment with techniques for adaptation and vulnerability assessment
- Knowledge and understanding on future implementation of low carbon development policy

Proposed faculty involvement

Unit 1 & 2: Social Science/ Botany/Zoology

Unit 3: Geography/Botany/ Zoology/ History

Unit 4: Geography/ Social Science/ Physics

Unit 5: Political Science/Social Science