



**SYLLABUS & PROGRAMME
STRUCTURE OF FOUR YEARS
UNDERGRADUATE PROGRAMME**

**ENVIRONMENTAL
SCIENCE**

(Minor)

Semester : V

(Under National Education Policy – 2020)

(Effective from the Academic Session 2023-2024)

**MAHARAJA BIR BIKRAM UNIVERSITY
AGARTALA, TRIPURA: 799004**

Syllabus for Undergraduate Course

Under NEP 2020

Fifth Semester ENSG (5T)

Credits: 4 (Theory 3 + Practical 1)

Total Marks: 100 (Theory: 40 + IA: 20; Practical: 20+ IA: 20)

Course Objectives:

- To introduce environmental management tools in a simplified form.
- To understand how environment and society interact.
- To familiarize students with real-world conflict cases without deep technicalities.

Course Title: Environmental Management and Society

Course Outcome	Attributes	
CO1	❖ Students will understand the concept, purpose, and importance of EIA. ❖ They will learn the simplified steps of conducting an EIA. ❖ They will be able to relate real-world Indian project examples with EIA outcomes.	
CO2	❖ Students will gain knowledge of Environment Management Plans (EMP). ❖ They will learn to identify simple indicators for environmental monitoring. ❖ They will recognize the roles of government, NGOs, and local communities in environmental management.	
CO3	❖ Students will understand the concept of environmental justice. ❖ They will be able to adopt sustainable lifestyle practices for waste, water, and energy management. ❖ They will analyze case studies of community-based conservation in India.	
CO4	❖ Students will identify common development–environment conflicts (mining, dams, urbanization). ❖ They will learn from Indian case studies of environmental movements and conflicts. ❖ They will understand basic approaches to conflict resolution in environmental issues.	
Unit 1	16 hours	Title of the Unit: Environmental Impact Assessment (EIA) – Basics
• Concept, Purpose, and Importance ○ Why EIA is necessary in modern development ○ Link between EIA and sustainable development goals (SDGs) ○ Differences between EIA and Environmental Audit • Steps of EIA (simplified) ○ Screening: deciding if EIA is required ○ Scoping: identifying issues to study ○ Baseline survey: collecting information on environment before the project ○ Impact prediction: identifying possible environmental consequences ○ Reporting and public participation • Types of Projects Requiring EIA		

○ Dams, mining, industries, roads, airports, hydropower • Simple Case Examples from India ○ Tehri Dam and its impacts ○ Delhi Metro (positive example of EIA and mitigation) ○ Vizhinjam Port project controversy		
Unit 2	16 hours	Title of the Unit: Environment Management Practices
• Introduction to Environment Management Plan (EMP) ○ Meaning and scope of EMP ○ Pollution prevention, waste minimization, and mitigation strategies • Monitoring and Evaluation ○ Air quality indicators (PM10, AQI) ○ Water quality indicators (pH, DO, BOD) ○ Soil health indicators (organic carbon, nutrients) • Institutional and Social Role ○ Government: MoEFCC, CPCB, SPCBs – their simplified roles ○ NGOs: awareness campaigns, community mobilization (Chipko Movement NGOs) ○ Local Communities: traditional resource management (sacred groves, rainwater harvesting) • Modern Management Approaches ○ 3R principle (Reduce, Reuse, Recycle) ○ Eco-friendly technologies (biogas, rainwater harvesting, green buildings) ○ Campus sustainability examples		
Unit 3:	16 hours	Title of the Unit: Environment and Society
• Concept of Environmental Justice ○ Meaning: equal rights to clean environment ○ Pollution and health inequality (industrial vs. rural/tribal areas) ○ Environmental racism and global South–North divide (simple illustrations) • Sustainable Lifestyles ○ Waste minimization (segregation at source, composting, zero-waste homes) ○ Water conservation (drip irrigation, rooftop rainwater harvesting, water recycling in households) ○ Energy saving (solar energy, LED lights, public transport use) ○ Food choices and environment (plant-based diets, organic farming) • Case Studies (Community-based Conservation in India) ○ Bishnoi community of Rajasthan – wildlife protection ○ Chipko movement – forest conservation by villagers ○ Apatani tribe of Arunachal Pradesh – sustainable paddy-fish farming ○ Self-help groups in Kerala for waste management		
Unit 4:	16 hours	Title of the Unit: Development vs. Environment
• Common Conflicts ○ Mining: loss of forests and displacement (e.g., Vedanta Mining in Niyamgiri Hills) ○ Urbanization: shrinking wetlands and green spaces (e.g., East Kolkata wetlands under threat) ○ Dams: displacement and ecological loss (e.g., Sardar Sarovar Project) • Indian Examples ○ Narmada Bachao Andolan (NBA) – large dams vs. displacement of people ○ Silent Valley Movement – biodiversity conservation vs. hydroelectric project ○ Save Western Ghats movement – mining, deforestation and people’s resistance		

- **Conflict Resolution Approaches**

- Dialogue and negotiation among stakeholders
- Role of judiciary (NGT, PILs)
- Use of technology: GIS for conflict mapping
- International models: participatory resource management (UNDP, World Bank safeguards)

Suggested Readings:

1. Wathern, P. (2018). *Environmental Impact Assessment: Theory and Practice*. Routledge.
2. Canter, L. (2015). *Environmental Impact Assessment: A Practical Guide*. McGraw-Hill.
3. Shultz, J. K. (2014). *Environmental Management Plans Demystified*. Wiley.
4. Croston, G. (2018). *Risk Assessment and Decision Making in Business and Industry*. CRC Press.
5. Sharma, S. N. (2016). *Environment, Development and Society in Contemporary India*. SAGE.
6. Singh, M. P. (2019). *Environmental Policy and Politics in India*. SAGE.
7. Simon, T. (2001). *Environmental Risk Assessment: A Toxicological Approach*. CRC Press.

Syllabus for Undergraduate Course

Under NEP 2020

Fifth Semester ENSG (5PR)

Credits: 4 (Theory 3 + Practical 1)

Total Marks: 100 (Theory: 40 + IA: 20; Practical: 20+ IA: 20)

Course Outcome	Attributes
CO1	❖ Students will be able to observe and document environmental impacts of local projects. ❖ Students will learn to design a basic EIA checklist for small-scale activities. ❖ Students will develop analytical and presentation skills by studying real-world environmental movements. ❖ Students will understand the process of stakeholder participation in environmental decision-making. ❖ Students will acquire problem-solving skills by proposing practical waste management solutions. ❖ Students will develop creativity and communication skills for environmental awareness.
Detail Content of Practical	
1. Visit to a nearby developmental project (road, industry, dam) and report its environmental impact 2. Preparation of a simple checklist for EIA of a local activity (e.g., market, college canteen) 3. Case study presentation on an environmental movement in India 4. Role play on stakeholder meeting for a local project 5. Group project: design simple waste management strategy for campus/hostel 6. Poster/chart preparation on “Development vs. Environment Conflicts”	

Suggested Readings:

1. Miller, G. T. & Spoolman, S. (2015). *Environmental Science*. Cengage Learning.
2. Wright, R. T. (2007). *Environmental Science: Toward a Sustainable Future*. Jones & Bartlett.
3. Nandini, N. (2019). *Textbook on Environmental Studies*. Sapna Book House.
4. Ali, S. H. (2018). *Development and Environment: A Study of Conflict*. Cambridge University Press.
5. Groom, M. J., Meffe, G. K. & Carroll, C. R. (2006). *Principles of Conservation Biology*. Sinauer Associates.