



National Institute of Technology Meghalaya

An Institute of National Importance

CURRICULUM

Programme	Bachelor of Technology (All branches)	Year of Regulation	2024-2025
Department	Chemical and Biological Sciences	Semester	II

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
CB 102	Environmental Science	2	0	0	2	50	50	100	200

Course Objectives	Course Outcomes	COs				Bloom's taxonomy
		CB102.1	CB102.2	CB102.3	CB102.4	
To introduce students to natural resources and the impact of various human activities on natural resources and the environment.	Course Outcomes	CB102.1	The students will be able to discuss various types of natural resources, their proper utilization, and conservation for maintaining ecological balance.	Understand		
To provide basic knowledge about the environment and its related socio-economic problems, environment protection, and environment improvement programs.		CB102.2	Able to analyze the impacts of various types of pollutants on the environment and provide a proper scientific and technical solutions to control them.	Analyze		
To study the causes and effects of air, and water pollution and the techniques for monitoring air and water quality in the environment.		CB102.3	Able to apply different techniques to manage solid wastes and recovery of useful materials from wastes.	Apply		
To provide basic knowledge and overview of solid waste management and its impact on human health and surrounding environments.		CB102.4	Able to understand the features of renewable energy resources and their importance for sustainable development.	Understand		

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CB102.1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
2	CB102.2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
3	CB102.3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
4	CB102.4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
	CB102							2								

SYLLABUS

No.	Content	Hours	COs
I	Natural resources: Scope and importance, concept of sustainability and sustainable development. Land resources- Land degradation, soil erosion and desertification. Deforestation; impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water- Surface and ground water, floods, droughts, population growth, and associated problems.	05	CB102.1 CB102.2
II	Human communities and the Environment: Demography, population, population explosion and population control, family welfare programs, resettlement and rehabilitation of affected persons, case studies. Disaster management- flood, earthquake, cyclones and landslides. Environmental movements – Chipko, Silent valley and Bishnois of Rajasthan. Environmental ethics, environmental conservations, public awareness. Environmental Protection Acts.	04	CB102.1
III	Air pollution: Source and effect of pollutants, primary and secondary pollutants, control measures. Acid rain and its impacts. Green-house effects and their impact on global climate change. Depletion of the ozone layer and its effects. Air pollution monitoring techniques. Water pollution: Natural water, pollutants- their origin and effects, oxygen demanding wastes, pathogens, nutrients, salts, heavy metals, pesticides, volatile organic compounds. River/ lake/ ground water pollution. Water pollution monitoring techniques	08	CB102.2
IV	Solid Waste Management: Municipal, industrial, commercial, agricultural, hazardous solid wastes, recovery and conversion method of waste and waste management, land filling/disposal, incineration, composting. Environment management and sustainability tools (material management and recovery planning) for sustainable management including ISO, RIOS & R2 certifications, environment audit. E-waste- composition and generation, global context in e- waste, effects of pollutant (E- waste) on human health and surrounding environment, e-waste control measures, steps in recycling and recovery of materials from e-waste.	07	CB102.3
V	Energy Resources: Renewable and non-renewable energy sources, use of alternate energy sources [solar energy, hydro (tidal) energy, wind energy, geothermal, biomass, nuclear energy].	04	CB102.4
Total Hours		28	

Essential Readings

- A. Basak, "Environmental Studies", 2nd Edition, Pearson, 2015.
- D. Dave and S.S. Katewa, "Text Book of Environmental Studies", Cengage Learning, 2nd Edition, 2012.

Supplementary Readings

- R. Daniels and J. Khrishnaswamy, "Environmental Studies", 1st Edition, Wiley, 2009.
- A. Khan, Inamuddin, A. M. Asiri "E-waste Recycling and Management", Springer Nature Switzerland AG, 2020