



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme			Credits Assigned		
		L	T	P	L	T	P
MC21	Environmental Studies	1	0	0	1	0	0
		Examination Scheme					
		ISE		ESE		Total	
		20		30		50	

After successful completion of the course, student will be able to		
Course Outcomes	CO1	Describe various characteristics of ecosystems.
	CO2	Outline different strategies for sustainable development through case studies.
	CO3	Enumerate causes, effects and control measures along with detection tools for environmental pollution with the help of examples and case studies
	CO4	Explain the Clearance, Consent and Authorization Mechanism with the help of case Studies
	CO5	Illustrate the harnessing methods and benefits of renewable sources of energy through real life examples and case studies
	CO6	Illustrate recent trends in environment protection strategies with the help of examples and case studies

Module No	Module Name	Unit No	Topics	Ref	Hours
1	Ecosystems	1.1	Ecosystem (definition, and classification, nutrient and energy flow); ecological pyramids	1, 2, 3	1
2	Sustainable Development	2.1	Definition of sustainable development, Appropriate Technologies and life cycle studies as control measures for sustainable development	1, 3	1
3	Environmental Pollution	3.1	Air Pollution: detection tools, causes and effects (climate change, Kyoto Protocol) depletion of ozone layer (Montreal Protocol), photochemical smog; Control measures: Venturi Scrubber and Electrostatic precipitator	4,5	2
		3.2	Water Pollution: detection tools, sources and effects (Biomagnification, eutrophication,), Activated sludge method for treatment of domestic wastewater, Industrial wastewater treatment,	2, 6	1
		3.3	E-Pollution, Solid waste management by landfill and incineration	3	1
4	Legal Provisions for	4.1	Clearance Control and Authorisation Mechanism, Environment Impact Assessment	4	1



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	environmental protection		(EIA)		
5	Renewable Sources of Energy	5.1	Renewable sources of energy : Solar, Wind and Hydropower	3, 4	1
6	Environment and Technology	6.1	Role of technology in environment, Green buildings, Indoor Air Pollution Carbon credits, Disaster management techniques	1, 3, 6	1
7	Presentation and Activity	7.1	Case Studies, Posters * Appropriate Technology Air Pollution Water Pollution Legislation Renewable energy sources Green Buildings Natural Disasters Man-made disasters		4
			Total		13

* to be part of ISE for 20M

List of References:

- [1] ErachBharucha, *Textbook of Environmental Studies*, 2nd ed, Hyderabad, India: University Press, 2013
- [2] Anubha Kaushik and P.C.Kaushik, *Perspectives in Environmental Studies*, 4th ed, New Delhi, India:New Age International (P) Ltd.
- [3] Dr. V.M.Balsaraf, *Environmental Studies*, 1st ed, Mumbai, India:Synergy Knowledgeware, 2013
- [4] R.Rajagopalan, *Environmental Studies*, 3rd ed. New Delhi, India: Oxford University Press, 2016
- [5] C.S.Rao, *Environmental Pollution Control Engineering*, 2nd ed, New Delhi, India:New Age International Publishers (P)Ltd.
- [6] AnanditaBasak, *Environmental Studies*, New Delhi, India:Pearson Education, 2013