INSTITUTE OF ENGINEERING AND TECHNOLOGY LOK JAGRUTI UNIVERSITY (LJU)

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Engineering (All Branch)

Bachelor of Engineering (B.E.) – Semester – I/II

Course Code:	**017018191, 017028191, 017038191, 017048191, 017058191, 017068191, 017078291, 017088291, 017098291, 017108291, 017118291, 017128191, 017138191, 017148191, 017158191**
Course Name:	**Environmental Science**
Category of Course:	Mandatory Course (MC)
Prerequisite Course:	---

Teaching Scheme

Lecture (L)	Tutorial (T)	Practical (P)	Credit	Total Hours
2	**0**	**0**	**0**	**20**

Syllabus

Unit No.	Topic	Prerequisite Topic	Successive Topic	Teaching Hours
01	**Introduction to Environment**			**1 (5%)**
	1.1 Definition, principles and scope of Environmental Science	---	---	
	1.2 Impacts of technology on Environment, Environmental Degradation,	---	---	
	1.3 Importance for different engineering disciplines	---	---	
02	**Water Pollution**			**2 (10%)**
	2.1Introduction – Water Quality Standards	---	Quality of Water (017093504 - Unit-3)	
	2.2 Sources of Water Pollution	---	Water Contamination (017083404 – Unit-5)	
	2.3 Classification of water pollutants	---		
	2.4 Effects of water pollutants	---		
03	**Air Pollution**			**2 (10%)**
	3.1Composition of air	---	Air pollution and its impact on Environment (017083404 – Unit-3)	
	3.2 Structure of atmosphere	---		
	3.3 Ambient Air Quality Standards	---		
	3.4 Classification of air pollutants	---		
	3.5 Sources of common air pollutants like PM, SO2, NOX, Auto exhaust	---		
	3.6 Effects of common air pollutants	---		
04	**Noise Pollution**			**2 (10%)**
	4.1Introduction	---	---	
	4.2 Sound and Noise	---	---	
	4.3Noise measurements	---	---	
	4.4 Causes and Effects	---	---	
05	**Solid waste management**			**2 (10%)**
	5.1 Introduction	---	Solid Waste and its Management Techniques (017083404 – Unit-7)	
	5.2 Types and Sources	---		
	5.3 Cause and Effect	---		
	5.4 Solid waste Management: Collection ,Processing ,Disposal	---		
06	**Biomedical waste management**			**2 (10%)**
	6.1 Introduction	---	---	
	6.2 Sources	---	---	
	6.3 Classification	---	---	
	6.4 Management: Segregation, Transportation, Treatment	---	---	
07	**Electronic Waste Management**			**2 (10%)**
	7.1 Introduction	---	---	
	7.2 Classification, Generation of Waste	---	---	
	7.3 International Trade or E-waste Dumping in Developing countries	---	---	
	7.4 Impacts of E-waste on Environment and Human Health	---	---	
	7.5 Management of E-waste	---	---	
08	**Global Environmental Issue**			**3 (15%)**
	8.1 Introduction	---	---	
	8.2 Climate Change	---	---	
	8.3 Greenhouse and Global Warming	---	---	
	8.4 Acid rain	---	---	
	8.5 Ozone Depletion	---	---	
	8.6 Carbon Foot Print	---	---	
	8.7 Benefits of Carbon foot prints	---	---	
	8.8 Cleaner Development Mechanism	---	---	
	8.9 International Steps for mitigation Global change	---	---	

09	**Green Technologies**			**2 (10%)**
	9.1 Design	---	---	
	9.2 Operational Parameters	---	---	
	9.3 Maintenance	---	---	
	9.4 Solar Energy	---	---	
	9.5 Wind Energy	---	---	
	9.6 Biomass Energy	---	---	
10	**Social issues and Environment**			**2 (10%)**
	10.1 Unsustainable to Sustainable Development	---	---	
	10.2 Urban problems related to energy	---	---	
	10.3 Population Growth, Impact of Population, Gender and Environment	---	---	
	10.4 Role of individual to protect Environment	---	---	
	10.5 Role of information Technology to protect Environment and Human health	---	---	

Proposed Theory + Practical Evaluation Scheme by Academicians
(% Weightage Category Wise and it's Marks Distribution)

L:	2	T:	0	P:	0

Note: In Theory Group, Total 4 Test (T1+T2+T3+T4) will be conducted for each subject.
Each Test will be of 25 Marks.
Each Test Syllabus Weightage: Range should be 20% - 30%

Group (Theory or Practical)	Group (Theory or Practical) Credit	Total Subject Credit	Category	% Weightage	Marks Weightage
Theory	**0**	**0**	MCQ	100%	100
Theory			Theory Descriptive	0%	0
Theory			Formulas and Derivation	0%	0
Theory			Numerical	0%	0
Expected Theory %	**0%**		**Calculated Theory %**	**100%**	**100**
Practical	**0**		Individual Project	0%	0
Practical			Group Project	0%	0
Practical			Internal Practical Evaluation (IPE)	0%	0
Practical			Viva	0%	0
Practical			Seminar	0%	0
Expected Practical %	**0%**		**Calculated Practical %**	**0%**	**0**
Overall %	**0%**			**100%**	**100**

Course Outcome

	Upon completion of the course students will be able to
1	Develop the ability to identify various types of pollution prevalent in society, comprehensively understanding their sources and the consequential impacts on both human health and the environment.
2	Acquire an in-depth understanding of different waste management strategies and their crucial significance in preserving both human health and the environment.
3	Understanding of various critical issue related to climate change, gaining insights into global initiatives and efforts aimed at addressing this critical environmental challenge.
4	Examine the role of eco-friendly technology in fostering sustainable development, considering both environmental and social implications.

Suggested Reference Books

1	Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha Second edition, 2013 Publisher: Universities Press (India) Private Ltd, Hyderabad
2	Basics of Environmental Studies by U K Khare, 2011 Published by Tata McGraw Hill
3	Environmental Science by B.R Shah and Dr.Sneha Popli Mahajan Publication House
4	Environmental Sciences by Daniel B Botkin & Edward A Keller Publisher: John Wiley & Sons.
5	De A.K., Environmental Chemistry, Wiley Eastern Ltd.
6	Agarwal, K.C.2001 Environmental Biology, Nidi Publ.Ltd.Bikane.
7	Renewable Energy and Technology by DR.P.Subrahmanian and DR.A.Sampatharajan

List of Open Source Software/Learning website

1	https://www.coursera.org/browse/physical-science-and-engineering/environmental-science-and-sustainability
2	https://www.classcentral.com/course/swayam-environmental-pollution-and-global-issues-22968
3	https://www.edx.org/learn/renewable-energy
4	https://www.coursera.org/learn/solid-waste-management
5	https://www.udemy.com/course/basic-medicalbiomedical-waste-management-course/
6	https://onlinecourses.nptel.ac.in/noc20_ce12/preview