



SILVER OAK UNIVERSITY

Engineering and Technology (B.Tech.)

All Departments

Subject Name: Environmental Science

Semester: 1st Year

Prerequisite:

NIL

Objective:

Inculcate environmental awareness as well as values in the students and translating them into pro-conservation actions. Honorable Supreme Court of India has made it 'mandatory' to introduce a basic course on environment at the undergraduate level.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Evaluation Scheme				Total Marks
L	T	P		Internal		External		
				Th	Pr	Th	Pr	
3	0	0	3	40	--	60	--	100

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	Introduction to Environment and Environmental Studies: Definition and Components of Environment, Relationship between the different components of Environment, Man and Environment relationship, Impact of technology on Environment, Environmental Degradation, Multidisciplinary nature of the Environment studies, its scope and importance in the present day Education System	2	4
2.	Human Population and Environment: Population Growth, World and Indian scenario, Population and Environmental Degradation, Malthusian theory, Optimum theory, Population explosion - Causes, Effects and Control. Urbanization: Urban population growth and Environmental problems	4	8
3.	ENVIRONMENTAL POLLUTION: a.) Water Pollution: Introduction - Water Quality Standards, Sources of Water Pollution: Industrial ,Agricultural, Municipal; Classification of water pollutants, Effects of water pollutants, Eutrophication	14	45

	<p>b.) Air Pollution: Composition of air, Structure of atmosphere, Ambient Air Quality Standards, Classification of air pollutants, Sources of common air pollutants like PM, SO₂, NO_x, Natural & Anthropogenic Sources, Effects of common air pollutants.</p> <p>c.) Noise Pollution: Introduction, Sound and Noise, Noise measurements, Causes and Effects</p> <p>d.) Solid Waste: Generation and management, Biomedical Waste, e-waste</p> <p>e.) Land Pollution: Land uses ,Land degradation: causes, effects and control, soil erosion</p>		
4.	<p>GLOBAL ENVIRONMENTAL ISSUES Sustainable Development, Climate Change, Global Warming and Green House Effect, Acid Rain, Depletion of Ozone layer, Carbon Footprint, Cleaner Development Mechanism (CDM), International Steps for Mitigating Global Change</p>	4	20
5.	<p>BASIC CONCEPT OF GREEN BUILDING AND SMART CITIES Green Building: Introduction, Objectives, Fundamental Principles, Benefits of Green Building, Examples of Green Building Smart Cities: Concept</p>	3	8
6.	<p>Energy Resources and Global Environmental Issues: Energy resources: Global and Indian energy demand scenario, Future Projections, Conventional and Non-conventional sources of energy, Advantages and Limitations, Utilization, Exploitation and related Environmental problems, Environmental implications of Non-conventional Energy Sources.</p>	5	15

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	To know about environments and its components	1
CO-2	To understand the impact of living beings on environment	2
CO-3	To get aware about the various pollutions and its control methods	3
CO-4	To update with basic concepts of green buildings and smart cities	4
CO-5	To understand concept of green buildings and smart cities and conventional and non-conventional sources of energy and Global Environmental Issues.	5 & 6

Teaching & Learning Methodology:

Chalk/Board, PPT, Documentaries and videos

List of Experiments/Tutorials:

1. Introduction to Environment
2. Water Pollution
3. Air Pollution
4. Noise Pollution
5. Solid Waste
6. Bio-medical Waste
7. E-waste
8. Global Environmental Issues
9. Concept of Green Building
10. Concept of Smart Cities

Major Equipment:

NA

Books Recommended:

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 Prof Dr N S Varandani , 2013 Publisher: LAP -Lambert Academic Publishing , Germany
3. Environmental Studies by Anindita Basak , 2009 Publisher: Drling Kindersley(India)Pvt. Ltd Pearson
4. Textbook of Environmental Studies by Deeksha Dave & S S Kateva , Cengage Publishers.
5. Environmental Sciences by Daniel B Botkin & Edward A Keller Publisher: John Wiley & Sons.
6. Environmental Studies by R. Rajagopalan, Oxford University Press
7. Environmental Studies by Benny Joseph, TMH publishers
8. Environmental Studies by Dr. Suresh K Dhameja, 2007 Published by : S K Kataria & Sons New Delhi
9. Basics of Environmental Studies by U K Khare, 2011 Published by Tata McGraw Hill

List of Open Source Software/learning website:

MOEF, NPTEL