

# GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING

## Department of Electrical Engineering Lesson Plan

<b>Subject :</b> ENVIRONMENTAL STUDIES			
<b>Discipline:</b> Electrical Engineering		<b>Name of the Faculty:</b> Er Sudhir Kumar Das	
<b>Course Code:</b>	TH-5	<b>Semester:</b>	3 <sup>rd</sup>
<b>Total Periods:</b>	60	<b>Examination:</b>	2022(Winter)
<b>Theory Periods:</b>	4P/W	<b>Class Test:</b>	20
<b>Maximum Marks:</b>	100	<b>End Semester Examination:</b>	80

Week	Periods in week	Theory Topics
1 <sup>st</sup>	1 <sup>st</sup>	The Multidisciplinary nature of environmental studies: 1.1 Definition, scope and importance.
	2 <sup>nd</sup>	1.2 Need for public awareness.
	3 <sup>rd</sup>	Natural Resources: Renewable and non renewable resources: 2.1 Natural resources and associated problems.
	4 <sup>th</sup>	2.1.1. Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.
2 <sup>nd</sup>	1 <sup>st</sup>	2.1.2. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
	2 <sup>nd</sup>	2.1.3. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
	3 <sup>rd</sup>	2.1.4. Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity,.
	4 <sup>th</sup>	2.1.5. Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
3 <sup>rd</sup>	1 <sup>st</sup>	2.1.6. Land Resources: Land source, land degradation, man induces landslides, soil erosion, and desertification.
	2 <sup>nd</sup>	2.2 Role of individual in conservation of natural resources.
	3 <sup>rd</sup>	2.3 Equitable use of resources for sustainable life styles.
	4 <sup>th</sup>	Systems: 3.1. Concept of an eco system.
4 <sup>th</sup>	1 <sup>st</sup>	3.2. Structure and function of an eco system.
	2 <sup>nd</sup>	3.3. Producers, consumers, decomposers.
	3 <sup>rd</sup>	3.4. Energy flow in the eco systems. 3.5. Ecological succession.
	4 <sup>th</sup>	3.6. Food chains, food webs and ecological pyramids.
	1 <sup>st</sup>	3.7. Introduction, types, characteristic features, structure and function of the

5 <sup>th</sup>		eco system
	<b>2<sup>nd</sup></b>	Biodiversity and it's Conservation: 4.1. Introduction-Definition: genetics, species and ecosystem diversity.
	<b>3<sup>rd</sup></b>	4.4. Biodiversity at global, national and local level.
	<b>4<sup>th</sup></b>	4.5. Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts
6 <sup>th</sup>	<b>1<sup>st</sup></b>	Environmental Pollution:
	<b>2<sup>nd</sup></b>	5.1. Definition Causes, effects and control measures of: 5.1.1 Air pollution.
	<b>3<sup>rd</sup></b>	5.1.2 Water pollution
	<b>4<sup>th</sup></b>	5.1.3 Soil pollution
7 <sup>th</sup>	<b>1<sup>st</sup></b>	5.1.4 Marine pollution
	<b>2<sup>nd</sup></b>	5.1.5 Noise pollution.
	<b>3<sup>rd</sup></b>	5.1.6 Thermal pollution
	<b>4<sup>th</sup></b>	5.1.7 Nuclear hazards
8 <sup>th</sup>	<b>1<sup>st</sup></b>	5.2. Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
	<b>2<sup>nd</sup></b>	5.3. Role of an individual in prevention of pollution.
	<b>3<sup>rd</sup></b>	5.4. Disaster management: Floods, earth quake, cyclone and landslides.
	<b>4<sup>th</sup></b>	Social issues and the Environment: 6.1. Form unsustainable to sustainable development.
9 <sup>th</sup>	<b>1<sup>st</sup></b>	6.2. Urban problems related to energy.
	<b>2<sup>nd</sup></b>	6.3. Water conservation, rain water harvesting, water shed management.
	<b>3<sup>rd</sup></b>	6.4. Resettlement and rehabilitation of people; its problems and concern
	<b>4<sup>th</sup></b>	6.5. Environmental ethics: issue and possible solutions
10 <sup>th</sup>	<b>1<sup>st</sup></b>	Forest ecosystem
	<b>2<sup>nd</sup></b>	Aquatic eco systems (ponds, streams, lakes, rivers, oceans estuaries).
	<b>3<sup>rd</sup></b>	6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.
	<b>4<sup>th</sup></b>	6.7. Air (prevention and control of pollution) Act.
	<b>1<sup>st</sup></b>	6.8. Water (prevention and control of pollution) Act.

11th	<b>2nd</b>	6.9. Public awareness.
	<b>3rd</b>	Human population and the environment: 7.1. Population growth and variation among nations.
	<b>4th</b>	7.2. Population explosion- family welfare program.
12th	<b>1st</b>	7.3. Environment and human health.
	<b>2nd</b>	7.4. Human rights. 7.5. Value education
	<b>3rd</b>	7.6. Role of information technology in environment and human health
	<b>4th</b>	Revisions