

**SCHEME OF COURSE WORK**  
**Department of Electrical and Electronics Engineering**

**CourseDetails:**

<b>COURSE TITLE</b>	ENVIRONMENTAL STUDIES		
<b>COURSE CODE</b>	22BC11Z1	<b>LTPC</b>	2 0 0 0
<b>PROGRAM</b>	B.TECH		
<b>SPECIALIZATION</b>	Common to all Branches		
<b>SEMESTER</b>	II		
<b>PREREQUISITES</b>	-		
<b>COURSE TO WHICH IT IS A PRE-REQUISITE</b>	N/A		

**Course Outcomes (COs):**

1	Explain the importance of various natural resources.
2	Discuss the interconnectedness of human dependence on the various ecosystems.
3	Apply the knowledge to prevent the major global environmental problems.
4	Explain the water management and environmental acts.
5	Discuss the effect of population growth on the environment.

**Program Outcomes (POs):**

A graduate of Electrical and Electronics engineering will be able to

<b>PO-1:</b> Apply the knowledge of basic sciences and electrical and electronics engineering fundamentals to solve the problems of power systems and drives.
<b>PO-2:</b> Analyze power systems that efficiently generate, transmit and distribute electrical power in the context of present Information and Communications Technology.
<b>PO-3:</b> Design and develop electrical machines and associated controls with due considerations to societal and environmental issues.
<b>PO-4:</b> Design and conduct experiments, analyze and interpret experimental data for performance analysis.
<b>PO-5:</b> Apply appropriate simulation tools for modeling and evaluation of electrical systems.
<b>PO-6:</b> Apply the electrical engineering knowledge to assess the health and safety issues and their consequences.
<b>PO-7:</b> Demonstrate electrical engineering principles for creating solutions for sustainable development.
<b>PO-8:</b> Develop a techno ethical personality that help to serve the people in general and Electrical and Electronics Engineering in particular.
<b>PO-9:</b> Develop leadership skills and work effectively in a team to achieve project objectives.
<b>PO-10:</b> Communicate effectively in both verbal and written form.
<b>PO-11:</b> Understand the principles of management and finance to manage project in multi disciplinary environments.
<b>PO-12:</b> Pursue life-long learning as same as of enhancing the knowledge and skills.

## Course Outcome versus Program Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	-	-	-	-	-	-	-	1	2	2
CO2	2	-	-	-	-	2	2	-	-	1	2	2
CO3	2	1	-	-	-	1	-	-	2	2	2	2
CO4	2	-	-	-	-	1	1	1	1	2	2	2
CO5	1	-	-	-	-	2	-	-	1	2	2	2

3-Strongly correlated, 2-Moderately correlated, 1- Weakly correlated, Blank-No correlation

Assessment Methods	Assignment/ Quiz/ Seminar/ Case Study/Mid-Test /End Exam
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Week	Topic/Contents	Course Outcomes	Sample questions	Teaching learning strategy	Assessment method & schedule
1	Renewable and nonrenewable resources, Forest resources, Water resources, Mineral resources	CO-1	1. Explain why renewable and non-renewable energy resources are important.	Lecture Demonstration	Assignment (Week1-8)
2	Use and exploitation, environmental effects of natural resources	CO-1	1.Effects of natural resources	Lecture Demonstration Discussion	Assignment (Week1-8)
3	Concept of an ecosystem	CO-2	1.Explain the concept of Ecosystem in brief	Lecture Demonstration	Assignment (Week1-8)
4	Structure and function of the following Ecosystem and Threats to biodiversity	CO-2	1.Discuss about various threats to biodiversity	Lecture Demonstration	Assignment (Week1-8)
5	Bio-geographical classification of India, Threats to biodiversity	CO-2	1.Write short notes on Genetic biodiversity, Species biodiversity, Ecosystem biodiversity	Lecture Demonstration	Assignment (Week1-8)
6	species and ecosystem diversity – Value of biodiversity: consumptive use, Productive use, social, ethical, aesthetic and option values Biodiversity at global, National and local levels India as a mega-diversity nation – Hot-spots of biodiversity	CO-2		Lecture Demonstration	Assignment (Week1-8)

8	In-situ and Ex-situ conservation of biodiversity	CO-2	1.Explain in-situ and ex-situ conservation along with their merits and limitations	Lecture Demonstration	Assignment (Week1-8)
9	Mid Test1				
10	Definition, Cause, effects and control measures of a) Air pollution b)Water pollution c)Noise pollution	CO-3	1. Explain a) Air pollution b) Water pollution c) Noise pollution in detail	Lecture Demonstration seminars	Assignment1 (Week1-8)
11	Causes, effects and control measures of urban and industrial wastes – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: floods, earthquake, cyclone and landslides.	CO-3	1. Discuss solid waste management	Lecture Demonstration Discussion	Assignment2 (Week10-17)
12	Urban problems related to energy – Water conservation, rain water harvesting, watershed management , Environmental ethics: Issues and possible solutions Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust	CO-4	1. Explain the reasons for global warming 2. Explain principles and the impact of disasters on the environment	Lecture Demonstration	Assignment2 (Week10 -17)
13	Environment Protection Act.: Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act.	CO-4	1.Discuss the Environmental Protection Acts	Lecture seminars	Assignment2 (Week10 -17)
14	Welfare Programme.Environment and human health. - HumanRights Value Education.-HIV/AIDS	CO-5	1. Explain about HIV/AIDS campaign.	Lecture Discussion	Assignment2 (Week10 -17)
15	River /forest grassland/hill/mountain	CO-5	Field Visit	Lecture Demonstration	Seminar (Week10-17)
16	Population growth, variation among nations. Population explosion Family	CO-4	1.Explain population explosion in detail	Lecture seminars	Assignment2 (Week10 -17)

17	Birds. - Study of simple ecosystems - pond, river, hillslopes	CO-5	Field Visit	Lecture Discussion	Assignment 2 (Week 10 - 17)
18	Mid-Test 2				
19	END EXAM				