

DEPARTMENT OF ELECTRICAL ENGINEERING

GOVERNMENT POLYTECHNIC, BARGARH



LESSON PLAN

ENVIRONMENTAL STUDIES (TH 5)

3RD SEMESTER

ELECTRICAL ENGINEERING

PREPARED BY

NIRANJAN NAYAK

LECTURER (ELECTRICAL)

DEPARTMENT OF ELECTRICAL ENGINEERING

VISION:

To produce Electrical Engineer professionals who can contribute for socio-economic and technological development to meet global needs.

MISSION:

M1 - To strengthen academic infrastructure leading to quality professional by using modern technical tools and technologies.

M2 - To impart innovative knowledge among the students and make more industry-institution programs to make them successful professionals for serving the society.

M3 - To provide a learning environment to improve problem solving abilities, leadership abilities, ethical responsibilities and lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: Apply electrical engineering knowledge and practical skills to solve well-defined engineering problems using modern tools and techniques.

PEO2: Perform effectively in industry and society as competent junior engineer, supervisors, or entrepreneurs with ethical and sustainable engineering practices.

PEO3: Demonstrate teamwork, communication, leadership, and project management skills in professional engineering activities.

PEO4: Engage in lifelong learning and adapt to emerging technologies for career growth and higher education.

PROGRAM SPECIFIC OUTCOMES

The electrical diploma engineers will be able to:

PSO1:-Apply the fundamentals of mathematics, science and engineering knowledge to identify, formulate, design and investigate engineering problems of electric circuits, analog and digital electronics, control system, electrical machines and power system.

PSO2:- Apply the appropriate techniques and modern engineering hardware and software tools in electrical engineering to engage in life-long learning and to successfully adapt in multidisciplinary environments.

PSO3:-Work professionally in power systems engineering, Electrical machinery and electrical circuit.

ACADEMIC LESSON PLAN OF WINTER 2024

Discipline: ELECTRICAL	Semester: 3 rd sem	Name of the Teaching Faculty: Niranjan Nayak
Subject: Environment al Studies (TH5)	No. of days/per week class allotted: 4p/ week	
Week	Class Day	Theory Topics
1 st	1 st	1.1 Definition, scope and importance.
	2 nd	1.2 Need for public awareness.
	3 rd	2.1 Natural resources and associated problems.
	4 th	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 nd	1 st	2.1.2. Water resources: Use and over-utilization of surface and groundwater, Floods, drought, conflicts over water, dam's benefits and problems.
	2 nd	2.1.3. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
	3 rd	2.1.4. Food Resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizers-pesticides problems, water logging, salinity.
	4 th	2.1.5. Energy Resources: Growing energy need, renewable and non-renewable Energy sources, use of alternate energy sources, case studies.
3 rd	1 st	2.1.6. Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification. 2.2 Role of individual in conservation of natural resources.
	2 nd	2.2 Role of individual in conservation of natural resources.
	3 rd	2.3 Equitable use of resources for sustainable lifestyles.
	4 th	3.1. Concept of an ecosystem.
4 th	1 st	3.2. Structure and function of an ecosystem. 3.3. Producers, consumers, decomposers.
	2 nd	3.4. Energy flow in the ecosystems.
	3 rd	3.5. Ecological succession. 3.6. Food chains, food webs and ecological pyramids.
	4 th	3.7. Introduction, types, characteristic features, structure and function of the following eco system
5 th	1 st	3.8. Forest ecosystem.
	2 nd	3.9. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans)
	3 rd	4.1. Introduction-Definition: genetics, species and ecosystem diversity.
	4 th	4.2. Biogeographical classification of India.
6 th	1 st	4.3. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
	2 nd	4.4. Biodiversity at global, national and local level. (Conti...)
	3 rd	4.4. Biodiversity at global, national and local level.

	4 th	4.5. Threats to biodiversity: Habitats loss, poaching of wildlife, man wildlife
		conflicts.
7 th	1 st	5.1. Definition Causes, effects and control measures.
	2 nd	5.1.1 Air pollution.
	3 rd	5.1.2 Water pollution.
	4 th	5.1.3 Soil pollution
8 th	1 st	5.1.4 Marine pollution.
	2 nd	5.1.5 Noise pollution.
	3 rd	5.1.6 Thermal pollution.
	4 th	5.1.7 Nuclear hazards.
9 th	1 st	5.2. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. (Conti...)
	2 nd	5.2. Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
	3 rd	5.3. Role of an individual in prevention of pollution.
	4 th	5.4. Disaster management: Floods, earthquake, cyclone and landslides.
10 th	1 st	6.1. From unsustainable to sustainable development.
	2 nd	6.2. Urban problems related to energy.
	3 rd	6.3. Water conservation, rainwater harvesting, watershed management.
	4 th	6.4. Resettlement and rehabilitation of people; its problems and concern.
11 th	1 st	6.5. Environmental ethics: issue and possible solutions.
	2 nd	6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. (Conti...)
	3 rd	6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear Accidents and holocaust, case studies.
	4 th	6.7. Air (prevention and control of pollution) Act.
12 th	1 st	6.8. Water (prevention and control of pollution) Act.
	2 nd	6.9. Public awareness.
	3 rd	7.1. Population growth and variation among nations. (Conti...)
	4 th	7.1. Population growth and variation among nations.
13 th	1 st	7.2. Population explosion-family welfare program.
	2 nd	7.3. Environment and human health. (Conti..)
	3 rd	7.3. Environment and human health.
	4 th	7.4. Human rights.
14 th	1 st	7.5. Value education
	2 nd	7.6. Role of information technology in environment and human health. (Conti..)
	3 rd	7.6. Role of information technology in environment and human health.
	4 th	Discussion about population explosion effects on environment

Signature of Teaching Faculty

Signature of HOD