PNS SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL ENGINEERING

Branch: Electrical Engg.	Semester: 3rd	Name of the Lecturer: **SNIGDHA DASH**
Subject: IEGS	Classes Alloted in a Week: 4	Duration of Semester: 14.07.2025 - 15.11.2025
Week	Class Day	Theory / Practical Topic
1st	1	**Thermal Power Plants**: Coal, Gas/Diesel and Nuclear-based
	2	Layout of a typical thermal power plant with steam turbines and electric generators
	3	working of a typical thermal power plant with steam turbines and electric generators
	4	Properties of conventional fuels used in the energy conversion equipment used in thermal power plants: Coal, Gas, Diesel, Nuclear fuels-fusion and fission action
2nd	1	Safe Practices and working of various thermal power plants
	2	coal based thermal power plants
	3	gas- based thermal power plants
	4	diesel-based thermal power plants
3rd	1	nuclear-based thermal power plants
	2	Functions of the following types of thermal power plants and their major auxiliaries : Coal fired boilers: fire tube and water tube
	3	Gas/diesel based combustion engines
	4	Types of nuclear reactors
4th	1	Disposal of nuclear waste and nuclear shielding
	2	solved numericals
	3	solved numericals
	4	solved numericals
5th	1	**Large Hydropower Plants** : Energy conversion process of hydro power plant
	2	Classification of hydro power plant: High ,medium and low head
	3	Construction and working of hydro turbines used in different types of hydro power plant : High head-Pelton turbine
	4	Construction and working of Medium head-Francis turbine
6th	1	Construction and working of Low head-Kaplan turbine
	2	Safe Practices for hydro power plants
	3	Locations of these different types of large hydro power plants in India
	4	solved numericals
7th	1	solved numericals
	2	**Micro-Hydropower Plants** : Lay out of micro hydro power plants
	3	Different types of micro-hydro turbines for different heads
	4	Pelton turbines
8th	1	Francis turbines
	2	Kaplan turbines
	3	Locations of these different types of micro-hydro power plants in India
	4	solved numericals

9th	1	solved numericals
	2	**Economics of Power Generation and Interconnected Power System** : Related terms: connected load, firm power, cold reserve, hot reserve, spinning reserve.
	3	Base load and peak load plants; Load curve, load duration curve, integrated duration curve
	4	Cost of generation: Average demand, maximum demand, demand factor, plant capacity factor
10th	1	plant use factor, diversity factor, load factor and plant load factor
	2	Choice of size and number of generator units
	3	Combined operation of power station
	4	Causes, Impact and reasons of Grid system fault
11th	1	Causes, Impact and reasons of State grid Fault
	2	Causes, Impact and reasons of national grid fault
	3	Causes, Impact and reasons of brownout and blackout
	4	sample blackouts at national and international level.
12th	1	solved numericals
	2	solved numericals
	3	solved numericals
	4	solved numericals

Signature of the Lecturer

Signature of the H.O.D.

Signature of the Principal