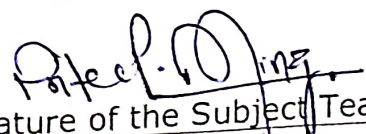


DISCIPLINE: ELECTRICAL & ELECTRONICS ENGG.	SEMESTER: 3rd	NAME OF THE TEACHING FACULTY: Pritee Prava Minz, Sr. Lecturer (EE)
SUBJECT: INTRODUCTION TO POWER GENERATION SYSTEMS (TH 2)	NO. OF DAYS/ WEEK CLASS ALLOTTED – 45 Hrs	SEMESTER FROM DATE 14.0-7.2025 to 15.11.2025
WEEK	CLASS DAY	THEORY TOPICS
1	1	Thermal Power Plants: Coal, Gas/Diesel and Nuclear-based : Layout of a typical thermal power plant
	2	working of a typical thermal power plant with steam turbines and electric generators
	3	Properties of conventional fuels used In the energy conversion equipment used in thermal power plants: Coal, Gas
2	4	Properties of conventional fuels used in the energy conversion equipment used in thermal power plants: Diesel
	5	Properties of conventional fuels used In the energy conversion equipment used in thermal power plants: Nuclear fuels-fusion and fission action
	6	Safe Practices and working of various thermal power plants: coal- based, gas- based
3	7	Safe Practices and working of various thermal power plants: diesel-based, nuclear-based
	8	Functions of the following types of thermal power plants and their major auxiliaries Allotted Time (Hours) : Coal fired boilers: fire tube and water tube
	9	Functions of the following types of thermal power plants and their major auxiliaries Allotted Time (Hours): Gas/diesel based combustion engines
4	10	Types of nuclear reactors :Disposal of nuclear waste and nuclear shielding
	11	Large and Micro-Hydropower Plants: Energy conversion process of hydro power plant
	12	Classification of hydro power plant: High Head
5	13	Classification of hydro power plant: medium and low head
	14	Construction and working of High head-Pelton turbine used in different types of hydro power plant
	15	Construction and working of Medium head-Francis turbine used in different types of hydro power plant
6	16	Construction and working of Low head-Kaplan turbine used in different types of hydro power plant
	17	Safe Practices for hydro power plants
	18	Different types of micro-hydro turbines for different heads: Pelton, Francis and Kaplan turbines
7	19	Locations of these different types of large and micro-hydro power plants in India
	20	Performance Test I
	21	Solar and Biomass based Power Plants: Solar Map of India: Global solar power radiation
8	22	Solar Power Technology: Concentrated Solar Power

		(CSP) plants
	23	construction and working of: Power Tower, Parabolic Trough, Parabolic Dish, Fresnel Reflectors
	24	Solar Photovoltaic (PV) power plant: layout, construction
9	25	Working of Solar Photovoltaic (PV) power plant
	26	Layout of a Bio-chemical based (e.g. biogas) power plant
	27	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
10	28	Layout of an Agro-chemical based (e.g. bio-diesel) power plant
	29	Features of the solid, liquid and gas biomasses as fuel for biomass power plant
	30	Wind Power Plants: Wind Map of India: Wind power density in watts per square meter, Layout of Horizontal axis large wind power plant
11	31	Geared wind power plant
	32	Direct-drive wind power plant
	33	Salient Features of Constant Speed Electric Generators used in large wind power plants
12	34	Salient Features of Squirrel Cage Induction Generators (SCIG) used in large wind power plants
	35	Salient Features of Wound Rotor Induction Generator (WRIG) used in large wind power plants
	36	Doubly-fed induction generator (DFIG)
13	37	Wound rotor synchronous generator (WRSG)
	38	Permanent magnet synchronous generator (PMSG)
	39	Economics of Power Generation and Interconnected Power System : Related terms: connected load, firm power, cold reserve, hot reserve, spinning reserve.
14	40	Base load and peak load plants; Load curve, load duration curve, integrated duration curve
	41	Cost of generation: Average demand, maximum demand, demand factor, plant capacity factor plant use factor, diversity factor, load factor and plant load factor
	42	plant use factor, diversity factor, load factor and plant load factor
15	43	Choice of size and number of generator units
	44	Combined operation of power station
	45	Causes, Impact and reasons of Grid system fault: State grid, national grid.
16	46	brownout and blackout; sample blackouts at national and international level.
	47	Performance Test II


 Signature of the Subject Teacher