



GOVERNMENT POLYTECHNIC ,NAYAGARH

Department Of Electrical Engineering

Semester: 3rd DIPLOM

Session: 2025-26(Winter)

Subject: Introduction to Electric Power Generation Systems(Theory)

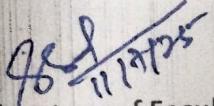
No Of Period :45 (3p/week)

Branch: Electrical Engineering

Name of Faculty: Satyabrata Sahoo

Week	Period	Topics to be covered
14/07/2025 to 19/07/2025	1	Layout and working of a typical thermal power plant with steam turbines and electric generators
	2	-do-
	3	Properties of conventional fuels used in the energy conversion equipment used in thermal power plants
21/07/2025 to 25/07/2025	4	Properties of conventional fuels used in the energy conversion equipment used in Coal fired thermal power plants.,
	5	Properties of conventional fuels used in the energy conversion equipment used in Gas based thermal power plants.
	6	Properties of conventional fuels used in the energy conversion equipment used in Diesel based thermal power plants.
28/08/2025 to 2/08/2025	7	Properties of conventional fuels used in the energy conversion equipment used in nuclear power plants, Nuclear fuels-fusion and fission action.
	8	Safe Practices and working of coal-based thermal power plants.
	9	Safe Practices and working of gas- based thermal power plants.
4/08/2025 to 9/08/2025	10	Safe Practices and working of diesel-based thermal power plants.
	11	Safe Practices and working of nuclear-based thermal power plants.
	12	Principle of operation of Back e.m.f. and its significance
11/08/2025 to 16/08/2025	13	Functions of Coal fired boilers: fire tube and water tube and their major auxiliaries
	14	Functions of Gas/diesel based combustion engines and their major auxiliaries
	15	-do-
18/08/2025 To 22/08/2025	16	Types of nuclear reactors: Disposal of nuclear waste and nuclear shielding
	17	Energy conversion process of hydro power plant
	18	Classification of hydro power plant: High, medium and low head
25/08/2025 To 30/08/2025	19	Construction and working of High head-Pelton turbine used in different types of hydro power plant
	20	Construction and working of Medium head-Francis turbine used in different types of hydro power plant
	21	Construction and working of Low head-Kaplan turbine used in different types of hydro power plant
1/09/2025 To 6/09/2025	22	Safe Practices for hydro power plants
	23	-do-
	24	Locations of these different types of large hydro power plants in India
8/09/2025 To 12/09/2025	25	Lay out of micro hydro power plants
	26	Different types of micro-hydro turbines for different heads: Pelton turbines
	27	Francis turbines
15/09/2025 To 20/09/2025	28	Kaplan turbines
	29	Locations of these different types of micro-hydro power plants in India

	30	Economics of Power Generation and Interconnected Power System
22/09/2025 To 26/09/2025	31	Related terms: connected load, firm power,
	32	cold reserve, hot reserve, spinning reserve.
	33	Base load and peak load plants;
6/10/2025 To 10/10/2025	34	Load curve, load duration curve, integrated duration curve
	35	Cost of generation: Average demand, maximum demand,
	36	demand factor, plant capacity factor
13/10/2025 To 18/10/2025	37	plant use factor, diversity factor, load factor and plant load factor
	38	Choice of size and number of generator units
	39	Combined operation of power station Causes, Impact and reasons of Grid system fault: State grid,
20/10/2025 To 24/10/2025	40	national grid
	41	brownout and blackout;
	42	sample blackouts at national and international level.
27/10/2025 To 1/11/2025	43	-do-
	44	Question answer Discussion
	45	Question answer Discussion
3/11/2025 to 15/11/2025		Question answer Discussion


Signature of Faculty

Signature of HOD