GOVT. POLYTECHNIC KANDHAMAL, (PHULBANI)

LESSON PLAN: RENEWABLE ENERGY POWER PLANTS (TH 5)

3RD – SEMESTER, 2026 (WINTER)

Discipline: **Electrical Engineering**	Semester: **Winter 2026**	Name of the teaching faculty: **PRIYABRATA PALASINGH NAYAK**
Subject: **REPP(TH5)**	No of days/per week class allotted: **03**	Semester From Date:**01.07.2026** To Date: **05.11.2026** No of weeks:**15**
Week:	Class day:	**Theory/practical topics:**
1ST	**1ST**	**Unit 1 (Solar PV and Concentrated Solar Power Plants)** Solar Map of India
	2ND	Global solar power radiation
	3RD	Solar PV
2ND	**1ST**	Concentrated Solar Power (CSP) plants
	2ND	construction and working of Power Tower
	3RD	construction and working of Parabolic Trough
3RD	**1ST**	construction and working of Parabolic Dish
	2ND	construction and working of Fresnel Reflectors
	3RD	Solar Photovoltaic (PV) power plant
4TH	**1ST**	components layout
	2ND	construction, working
	3RD	Roof top solar PV power system
5TH	**1ST**	**Unit 2 (Large Wind Power Plants)** Wind Map of India:
	2ND	Wind power density in watts per square meter Lift and drag principle
	3RD	long path theory
6TH	**1ST**	Geared type wind power plants: components, layout and working

	2ND	Direct drive type wind power plants: components, layout and working
	3RD	Constant Speed Electric Generators
7TH	1ST	Squirrel Cage Induction Generators(SCIG)
	2ND	Wound Rotor Induction Generator (WRIG)
	3RD	Variable Speed Electric Generators
8TH	1ST	Doubly-fed induction generator (DFIG)
	2ND	wound rotor synchronous generator (WRSG)
	3RD	permanent magnet synchronous generator (PMSG)
9TH	1ST	**Unit 3 (Small Wind Turbines)** Horizon axis small wind turbine: direct drive type
	2ND	components and working
	3RD	Horizontal axis small wind turbine: geared type
10TH	1ST	components and working
	2ND	Vertical axis small wind turbine: direct drive and geared
	3RD	components and Working
11TH	1ST	Types of towers
	2ND	installation of small wind turbines on rooftops and open fields.
	3RD	Electric generators used in small wind power plants
12TH	1ST	**Unit 4 (Biomass-based Power Plants)** Properties of solid fuel for biomass power plants
	2ND	bagasse, wood chips
	3RD	rice husk, municipal waste

13TH	1ST	Properties of liquid and gaseous fuel for bio mass power plants
	2ND	Jatropha
	3RD	bio- diesel gobar gas
14TH	1ST	Layout of a Bio-chemical based (e.g. biogas) power plant
	2ND	Layout of a Bio-chemical based (e.g. biogas) power plant
	3RD	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
15TH	1ST	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
	2ND	Layout of a Agro-chemical based (e.g.bio-diesel) power plant
	3RD	Layout of a Agro-chemical based (e.g.bio-diesel) power plant

Sign. of Faculty Concerned

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