SYNERGY SCHOOL OF ENGINEERING

DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: Electrical Engineering	Semester: - 3rdSem EE	Name of the teaching faculty: - SUNANDITA SAHOO
Subject: - RENEWABLE ENERGY POWER PLANTS	No. of Days/week class Allotted: - 3	No. of weeks: -15 SESSION-2026-2027 WINTER Starting date- 01.07.2026 Closing date- 05.11.2026
No. of week	**No. of class**	**Topic to be Taught**
1	1ST	**Solar PV and Concentrated Solar Power Plants** Solar Map of India: Global solar power radiation, Solar PV
	2ND	Solar Map of India: Global solar power radiation, Solar PV
	3RD	Solar Map of India: Global solar power radiation, Solar PV
2	1ST	Solar Map of India: Global solar power radiation, Solar PV
	2ND	Concentrated Solar Power (CSP) plants,
	3RD	construction and working of: Power Tower
3	1ST	Parabolic Trough, Parabolic Dish, Fresnel Reflectors
	2ND	Parabolic Trough, Parabolic Dish, Fresnel Reflectors
	3RD	Solar Photovoltaic (PV) power plant: components layout
4	1ST	construction, working.
	2ND	construction, working.
	3RD	Roof top solar PV power system
5	1ST	**Large Wind Power Plants** Wind Map of India: Wind power density in watts per square meter Lift and drag principle; long path theory.
	2ND	Wind Map of India: Wind power density in watts per square meter Lift and drag principle; long path theory.
	3RD	Geared type wind power plants: components, layout and working
6	1ST	Direct drive type wind power plants: components, layout and working.
	2ND	Constant Speed Electric Generators: Squirrel Cage Induction Generators (SCIG)
	3RD	Constant Speed Electric Generators: Squirrel Cage Induction Generators (SCIG)
7	1ST	Wound Rotor Induction Generator (WRIG)
	2ND	Variable Speed Electric Generators
	3RD	Doubly-fed induction generator (DFIG)
8	1ST	wound rotor synchronous generator (WRSG)
	2ND	permanent magnet synchronous generator (PMSG)
	3RD	permanent magnet synchronous generator (PMSG)
9	1ST	**Small Wind Turbines** Horizon axis small wind turbine: direct drive type, components and working
	2ND	Horizontal axis small wind turbine: geared type, components and working
	3RD	Horizontal axis small wind turbine: geared type, components and

SSahu 02.06.2026

		working
10	1ST	Vertical axis small wind turbine: direct drive and geared, components
	2ND	Vertical axis small wind turbine: direct drive and geared, components
	3RD	Working Types of towers and installation of small wind turbines on rooftops and open fields
11	1ST	Working Types of towers and installation of small wind turbines on rooftops and open fields
	2ND	Electric generators used in small wind power plants
	3RD	Electric generators used in small wind power plants
12	1ST	**Biomass-based Power Plants** Properties of solid fuel for biomass power plants: bagasse, wood chips, rice husk, municipal waste
	2ND	Properties of solid fuel for biomass power plants: bagasse, wood chips, rice husk, municipal waste
	3RD	Properties of liquid and gaseous fuel for bio mass power plants: Jatropha, bio-diesel go bar gas
13	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 Bio-chemical based (e.g. biogas) power plant
14	1ST	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
	2ND	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
	3RD	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant
15	1ST	Layout of a Agro-chemical based (e.g. bio-diesel) 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

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02.06.2026

Prepared by

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