



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE & affiliated to SCTE & VT, Odisha)



LESSON PLAN

SUBJECT: RENEWABLE ENERGY (TH-4)

Name Of The Faculty :-Er. SHRADDHA PRIYADARSHINI

Branch :- Electrical Engineering

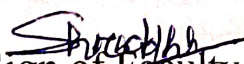
Session :-2024-25


Semester :- 6th

Examination :-2025(S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Energy Situation and Renewable Energy Sources	5	5
2	Solar Radiation & Collectors	6	7
3	Low-Temperature Applications of Solar Energy	6	6
4	Passive Space Conditioning & Collectors	7	7
5	Solar Thermal Power Plants	8	8
6	Solar Photovoltaics	8	10
7	Wind Energy	5	5
8	Wind Energy Converters	8	8
9	Energy economics	7	10
10	Tutorial	15	15
TOTAL		75	81


Sign of Faculty

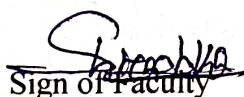

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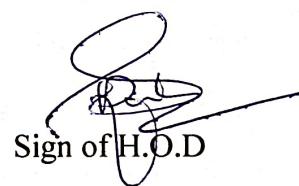
Discipline: Electrical Engineering	Semester: 6TH	Name of the Teaching Faculty: Er. SHRADDHA PRIYADARSHINI	
		SESSION : 2024-25	EXAMINATION : 2024 (S)
Week	Class Day	Topics to be Covered	
1st	1st	Energy Situation and Renewable Energy Sources Renewable and Non-renewable Energy Sources	
	2nd	Energy and Environment	
	3rd	Origin of Renewable Energy Sources	
	4th	Potential of Renewable Energy Sources	
	5th	Tutorial class	
2nd	1st	Direct-use Technology	
	2nd	Solar Radiation & Collectors Solar Radiation Through Atmosphere	
	3rd	Terrestrial Solar Radiation	
	4th	Measurement of Solar Radiation	
	5th	Tutorial class	
3rd	1st	Measurement of Solar Radiation	
	2nd	Classification of Solar Radiation Instruments	
	3rd	Flat Plate Collectors	
	4th	Optical Characteristics	
	5th	Tutorial class	
4th	1st	Low-Temperature Applications of Solar Energy Swimming Pool Heating	
	2nd	Solar water Heating Systems	
	3rd	Solar water Heating Systems	
	4th	Natural Convection water Heating Systems	
	5th	Tutorial class	
5th	1st	Solar Drying	
	2nd	Solar Pond	
	3rd	Passive Space Conditioning & Collectors Principle Space conditioning	
	4th	Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading, Paints, Collings	
	5th	Tutorial class	

Week	Class Day	Topics to be Covered
6 th	1 st	Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading, Paints, Collings
	2 nd	Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading, Paints, Collings
	3 rd	Construction of Concentrator
	4 th	Construction of Concentrator
	5 th	Tutorial class
7 th	1 st	Energy losses
	2 nd	Solar Thermal Power Plants Introduction
	3 rd	Solar Collection System
	4 th	Solar Collection System
	5 th	Tutorial class
8 th	1 st	Thermal Storage for Solar Power Plants
	2 nd	Thermal Storage for Solar Power Plants
	3 rd	Capacity Factor and Solar Multiple
	4 th	Capacity Factor and Solar Multiple
	5 th	Tutorial class
9 th	1 st	Energy Conversion
	2 nd	Solar Photovoltaics Band Theory of Solids, Physical Processes in a Solar Cell
	3 rd	Solar Cell Characteristics
	4 th	Equivalent Circuit Diagram of Solar Cells
	5 th	Tutorial class
10 th	1 st	Cell Types - Crystalline Silicon Solar Cell , Solar Cells for Concentrating Photovoltaic Systems, Dye –sensitized Solar Cell (DSC)
	2 nd	Cell Types - Crystalline Silicon Solar Cell , Solar Cells for Concentrating Photovoltaic Systems, Dye –sensitized Solar Cell (DSC)
	3 rd	Solar Module
	4 th	Further System Components -Solar inverters ,Mounting Systems, Storage Batteries ,Other System Components
	5 th	Tutorial class

Week	Class Day	Topics to be Covered
11 th	1 st	Grid-independent Systems -System Configuration
	2 nd	Grid-connected Systems -Small Roof Top Systems , Medium-scale PV Generator ,Centralized System
	3 rd	Grid-connected Systems -Small Roof Top Systems , Medium-scale PV Generator ,Centralized System
	4 th	Wind Energy Wind Flow and Wind Direction
	5 th	Tutorial class
12 th	1 st	Wind Measurements Measurement of Pressure Head
	2 nd	Hot wire Anemometer
	3 rd	Cup Anemometer (Robinson's Anemometer
	4 th	Wind Direction Indicators
	5 th	Tutorial class
13 th	1 st	Wind Energy Converters Historical Development
	2 nd	Aerodynamic of Rotor Blade -Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient
	3 rd	Aerodynamic of Rotor Blade -Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient
	4 th	Aerodynamic of Rotor Blade -Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient
	5 th	Tutorial class
14 th	1 st	Components of a Wind Power Plant -Wind Turbine -Tower -
	2 nd	Components of a Wind Power Plant -Wind Turbine -Tower - Electric Generators -Foundation
	3 rd	Power Control -Slow Rotors; Poor Control Mechanism - Control of Fast Rotors
	4 th	Power Control -Slow Rotors; Poor Control Mechanism - Control of Fast Rotors
	5 th	Tutorial class

Week	Class Day	Topics to be Covered
15 th	1 st	Energy economics Present worth, Life cycle costing (LCC)
	2 nd	Present worth, Life cycle costing (LCC)
	3 rd	Annual Life cycle costing (ALCC), Annual savings. calculations for Solar thermal system
	4 th	Annual Life cycle costing (ALCC), Annual savings. calculations for Solar thermal system
	5 th	Annual Life cycle costing (ALCC), Annual savings. calculations for Solar thermal system
16 th	1 st	Energy economics Present worth, Life cycle costing (LCC), Annual Life cycle costing (ALCC), Annual savings. calculations for Solar thermal system
	2 nd	Solar PV system,
	3 rd	Wind system
	4 th	Biomass system
	5 th	Tutorial class


Sign of Faculty


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