



# GANDHI SCHOOL OF ENGINEERING

**BHABANDHA, BERHAMPUR**

**BRANCH:- ELECTRONICS & TELECOMMUNICATION ENGINEERING**

**SEMESTER:- 6<sup>TH</sup>**

**SUBJECT:- RENEWABLE ENERGY SOURCES**

**Name of the Faculty- ER DEBASHRI PATNAYAK**

Topic to be taken					Actual topic taken			
Sl. No	Topic/Module	No. of period	Details of the topics	Date	Topic No.	Topic Name	Date	Remarks
1	Energy Situation and Renewable Energy Sources	05	1.1 Renewable and Non-renewable Energy Sources 1.2 Energy and Environment 1.3 Origin of Renewable Energy Sources 1.4 Potential of Renewable Energy Sources	13/02/2023 TO 22/02/2023	1.1  1.2  1.3  1.4	Renewable and Non-renewable Energy Sources  Energy and Environment  Origin of Renewable Energy Sources  Potential of Renewable Energy Sources	13/02/2023  15/02/2023 & 17/02/2023  20/02/2023  22/02/2023	
2	Solar Radiation & Collectors	06	2.1 Solar Radiation Through Atmosphere 2.2 Terrestrial Solar Radiation 2.3 Measurement of Solar Radiation 2.4 Classification of Solar Radiation Instruments 2.5 Flat Plate Collectors 2.6 Optical Characteristics	24/02/2023 TO 04/03/2023	2.1  2.2  2.3  2.4  2.5  2.6	Solar Radiation Through Atmosphere  Terrestrial Solar Radiation  Measurement of Solar Radiation  Classification of Solar Radiation Instruments  Flat Plate Collectors  Optical Characteristics	24/02/2023  25/02/2023  27/02/2023  01/03/2023  03/03/2023  04/03/2023	

3	Low-Temperature Applications of Solar Energy.	06	3.1 Swimming Pool Heating 3.2 Solar water Heating Systems 3.3 Natural Convection water Heating Systems 3.4 Solar Drying 3.5 Solar Pond	06/03/2023 TO 15/03/2023	3.1 Swimming Pool Heating 3.2 Solar water Heating Systems 3.3 Natural Convection water Heating Systems 3.4 Solar Drying 3.5 Solar Pond	06/03/2023 10/03/2023 11/03/2023 & 13/03/2023 14/03/2023 15/03/2023
4	Passive Space Conditioning & Collectors	07	4.1 Principle Space conditioning 4.2 Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading,Paints, Collings 4.3 Construction of Concentrator 4.4 Energy losses	16/03/2023 TO 25/03/2023	4.1 Principle Space conditioning 4.2 Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading,Paints, Collings 4.3 Construction of Concentrator 4.4 Energy losses	06/03/2023 17/03/2023 & 18/03/2023 & 20/03/2023 22/03/2023 24/03/2023 & 25/03/2023
5	<b>Solar Thermal Power Plants</b>	08	5.1 Introduction 5.2 Solar Collection System 5.3 Thermal Storage for Solar Power Plants 5.4 Capacity Factor and Solar Multiple 5.5 Energy Conversion	27/03/2023 TO 08/04/2023	5.1 Introduction 5.2 Solar Collection System 5.3 Thermal Storage for Solar Power Plants 5.4 Capacity Factor and Solar Multiple 5.5 Energy Conversion	27/03/2023 29/03/2023 & 31/03/2023 03/04/2023 & 04/04/2023 05/04/2023 & 06/04/2023 08/04/2023

6	Solar Photovoltaics	08	6.1 Band Theory of Solids, Physical Processes in a Solar Cell , 6.2 Solar Cell Characteristics 6.3 Equivalent Circuit Diagram of Solar Cells 6.4 Cell Types - Crystalline Silicon Solar Cell , Solar Cells for Concentrating Photovoltaic Systems , Dye –sensitized Solar Cell (DSC) 6.5 Solar Module 6.6 Further System Components -Solar inverters ,Mounting Systems,Storage Batteries ,Other System Components 6.7 Grid-independent Systems -System Configuration 6.8 Grid-connected Systems -Small Roof Top Systems ,Medium-scale PV Generator ,Centralized System	10/04/2023 TO 25/04/2023	6.1  6.2  6.3  6.4  6.5  6.6  6.7  6.8	Band Theory of Solids, Physical Processes in a Solar Cell  Solar Cell Characteristics  Equivalent Circuit Diagram of Solar Cells  Cell Types - Crystalline Silicon Solar Cell , Solar Cells for Concentrating Photovoltaic Systems , Dye –sensitized Solar Cell (DSC)  Solar Module  Further System Components - Solar inverters ,Mounting Systems,Storage Batteries ,Other System Components  Grid-independent Systems - System Configuration  Grid-connected Systems -Small Roof Top Systems ,Medium-scale PV Generator ,Centralized System	10/04/2023  12/04/2023  15/04/2023  17/04/2023  19/04/2023  21/04/2023  24/04/2023  25/04/2023	
7	Wind Energy	05	7.1 Wind Flow and Wind Direction 7.2 Wind Measurements 7.3 Measurement of Pressure Head 7.4 Hot wire Anemometer 7.5 Cup Anemometer (Robinson’s Anemometer) <b>7.6 Wind Direction Indicators</b>	26/04/2023 TO 01/05/2023	7.1  7.2  7.3  7.4  7.5  7.6	Wind Flow and Wind Direction  Wind Measurements  Measurement of Pressure Head  Hot wire Anemometer  Cup Anemometer (Robinson’s Anemometer)  Wind Direction Indicators	26/04/2023  26/04/2023  27/04/2023  28/04/2023  29/04/2023  01/05/2023	

8	Wind Energy Converters	08	8.1 Historical Development 8.2 Aerodynamic of Rotor Blade -Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient 8.3 Components of a Wind Power Plant - Wind Turbine -Tower -Electric Generators – Foundation 8.4 Power Control -Slow Rotors; Poor Control Mechanism -Control of Fast Rotors	03/05/2023 TO 13/05/2023	8.1 Historical Development 8.2 Aerodynamic of Rotor Blade - Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient 8.3 Components of a Wind Power Plant -Wind Turbine -Tower - Electric Generators –Foundation 8.4 Power Control -Slow Rotors; Poor Control Mechanism -Control of Fast Rotors	03/05/2023 & 06/05/2023 & 08/05/2023 & 09/05/2023 & 10/05/2023 & 11/05/2023 & 12/05/2023 & 13/05/2023
9	Energy economics	07	9.1 Present worth, Life cycle costing (LCC), Annual Life cycle costing(ALCC), Annual savings. calculations for Solar thermal system 9.2 Solar PV system,	15/05/2023 TO 23/05/2023	9.1 Present worth, Life cycle costing (LCC), Annual Life cycle costing(ALCC), Annual savings. calculations for Solar thermal system 9.2 Solar PV system	15/05/2023 & 16/05/2023 & 17/05/2023 & 18/05/2023 & 20/05/2023 & 22/05/2023 & 23/05/2023



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