GANDHI SCHOOL OF ENGINEERING

BHABANDHA, BERHAMPUR

BRANCH:- ELECTRICAL ENGINEERING

SEMESTER:- 6TH

SUBJECT:- RENEWABLE ENERGY

GROUP- 1&2

Name of the Faculty- ER. GYANARANJAN MAHAPATRA& ER. SURABHI TRIPATHY

			Topic to be taken			Actual topictaken		
Sl. No	Topic/Module	No. of period	Details of the topics	Date	Topic No.	Topic Name	Date	Remarks
1	Introduction to Renewable energy:	05	1.1. Environmental consequences of fossil fuel use. 1.2. Importance of renewable sources of energy. 1.3. Sustainable Design and development. 1.4. Types of RE sources. 1.5. Limitations of RE sources. 1.6. Present Indian and international energy scenario of conventional and RE sources	18.01.2024 TO 24.01.2024	1.1 1.2 1.3 1.4 1.5 1.6	1.1. Environmental consequences of fossil fuel use. 1.2. Importance of renewable sources of energy. 1.3. Sustainable Design and development. 1.4. Types of RE sources. 1.5. Limitations of RE sources. 1.6. Present Indian and international energy scenario of conventional and RE sources	18.01.2024 19.01.2024 20.01.2024 22.01.2024 24.01.2024	
2	Solar Energy	15	2.1. Solar photovoltaic system-Operating principle 2.2. Photovoltaic cell concepts 2.2.1. Cell, module, array, Series and parallel connections. Maximum power point tracking (MPPT). 2.3. Classification of energy Sources. 2.4. Extra-terrestrial and terrestrial Radiation. 2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.	25.01.2024 TO 16.02.2024	2.1 2.2 2.2.1 2.3	2.1. Solar photovoltaic system-Operating principle 2.2. Photovoltaic cell concepts 2.2.1. Cell, module, array, Series and parallel connections. Maximum power point tracking (MPPT). 2.3. Classification of energy	25.01.2024 31.01.2024 01.02.2024 02.02.2024 03.02.2024 05.02.2024 06.02.2024 07.02.2024 08.02.2024	

			2.6. Solar collectors, Types and performance characteristics, 2.7. Applications: Photovoltaic - battery charger, domestic lighting, street lighting, water pumping, solar cooker, Solar Pond.		2.4 2.5	Sources. 2.4. Extra-terrestrial and terrestrial Radiation. 2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.	09.02.2024 10.02.2024 12.02.2024 13.02.2024 15.022024 16.02.2024	

03	Wind Energy:	12	3.1. Introduction to Wind energy. 3.2. Wind energy conversion. 3.3. Types of wind turbines 3.4. Aerodynamics of wind rotors. 3.5. Wind turbine control systems; conversion to electrical power: 3.6. Induction and synchronous generators. 3.7. Grid connected and self excited induction generator operation. 3.8. Constant voltage and constant frequency generation with power electronic control. 3.9. Single and double output systems. 3.10. Characteristics of wind power plant.	17.02.2024 TO 01.03.2024	3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10	3.1. Introduction to Wind energy. 3.2. Wind energy conversion. 3.3. Types of wind turbines 3.4. Aerodynamics of wind rotors. 3.5. Wind turbine control systems; conversion to electrical power: 3.6. Induction and synchronous generators. 3.7. Grid connected and self excited induction generator operation. 3.8. Constant voltage and constant frequency generation with power electronic control. 3.9. Single and double output systems. 3.10. Characteristics of wind power plant.	17.02.2024 19.02.2024 20.02.2024 21.02.2024 22.02.2024 23.02.2024 24.02.2024 26.02.2024 27.02.2024 28.02.2024 29.02.2024 01.03.2024	
04	BIOMASS ENERGY:	12	4.1. Energy from Biomass. 4.2. Biomass as Renewable Energy Source 4.3. Types of Biomass Fuels - Solid, Liquid and Gas. 4.4. Combustion and fermentation. 4.5. Anaerobic digestion. 4.6. Types of biogas digester. 4.7. Wood gassifier. 4.8. Pyrolysis,. 4.9. Applications: Bio gas, Bio diesel	02.03.2024 TO 19.03.2024	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9	4.1. Energy from Biomass. 4.2. Biomass as Renewable Energy Source 4.3. Types of Biomass Fuels - Solid, Liquid and Gas. 4.4. Combustion and fermentation. 4.5. Anaerobic digestion. 4.6. Types of biogas digester. 4.7. Wood gassifier. 4.8. Pyrolysis,. 4.9. Applications: Bio gas, Bio diesel	02.03.2024 04.03.2024 06.03.2024 07.03.2024 11.03.2024 12.03.2024 13.03.2024 14.03.2024 15.03.2024 16.03.2024 18.02.2024 19.03.2024	

05	OTHER ENERGY RESOURCES:	16	Other Energy Sources 5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems. 5.2. Ocean Thermal Energy Conversion (OTEC). 5.3. Geothermal Energy – Classification. 5.4. Hybrid Energy Systems. 5.5. Need for Hybrid Systems. 5.6. Diesel-PV, Wind-PV, Microhydel-PV. 5.7. Electric and hybrid electric vehicles	20.03.2024 TO 18.04.2024	5.1 5.2 5.3 5.4 5.5 5.6 5.7	Other Energy Sources 5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems. 5.2. Ocean Thermal Energy Conversion (OTEC). 5.3. Geothermal Energy – Classification. 5.4. Hybrid Energy Systems. 5.5. Need for Hybrid Systems. 5.6. Diesel-PV, Wind-PV, Microhydel-PV. 5.7. Electric and hybrid electric vehicles	20.03.2024 21.03.2024 22.03.2024 23.03.2024 27.03.2024 28.03.2024 30.03.2024 02.04.2024 03.04.2024 04.04.2024 05.04.2024 06.04.2024 08.04.2024 09.04.2024 10.04.2024 12.04.2024 13.04.2024 15.04.2024 16.04.2024 18.04.2024	

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