GOVT. POLYTECHNIC NAYAGARH LESSON PLAN

Discipline : ELECTRICAL ENGG	Semester: 6th Sem	Name of the Teaching Faculty : Jadunath Murmu(Sr. Lect, in ETC)
Subject : RENEWABLE ENERGY	No. of Days / per week class allotted : 04	Semester From date : 10.03.2022 To Date : 10.06.2022
Week	**Class Day**	**Topics**
2ND MARCH from dt.10.3.22 to dt.12.3.22	1st	1.1. Environmental consequences of fossil fuel use.
	2nd	1.2. Importance of renewable sources of energy. 1.3. Sustainable Design and development
3ND MARCH from dt.14.3.22 to dt.19.3.22	1st	1.4. Types of RE sources.
	2nd	1.5. Limitations of RE sources.
	3rd	1.6. Present Indian and international energy scenario of conventional and RE sources
	4th	2.1. Solar photovoltaic system-Operating principle.
	5th	2.2. Photovoltaic cell concepts 2.2.1. Cell, module, array, Series and parallel connections. Maximum power point tracking (MPPT).
4th MARCH from dt.21.3.22 to dt.26.3.22	1st	2.3. Classification of energy Sources.
	2nd	2.4. Extra-terrestrial and terrestrial Radiation.
	3rd	2.4. Extra-terrestrial and terrestrial Radiation.
	4th	2.5. Azimuth angle, Zenith angle,
	5th	Hour angle, Irradiance, Solar constant.
5th MARCH from dt.28.3.22 to dt.31.3.22	1st	2.6. Solar collectors,
	2nd	Types and performance characteristics,
	3rd	2.7. Applications: Photovoltaic - battery charger
	4th	domestic lighting, street lighting,
	5th	water pumping, solar cooker, Solar Pond.
1ST APRIL from dt.02.4.22 to dt.02.4.22	1st	REVISION
2nd APRIL from dt.04.4.22 to dt.09.4.22	1st	3. Wind Energy: 3.1. Introduction to Wind energy.
	2nd	3.2. Wind energy conversion.
	3rd	3.3. Types of wind turbines
	4th	3.4. Aerodynamics of wind rotors.
	5th	3.5. Wind turbine control systems; conversion to electrical power:
3rd APRIL from dt.11.4.22 to dt.16.4.22	1st	3.6. Induction and synchronous generators.
	2nd	3.7. Grid connected and self excited induction generator operation.
	3rd	3.8. Constant voltage and constant frequency generation with power electronic control. Part
	4th	3.8. Constant voltage and constant frequency generation with power electronic control. Part
	5th	3.9. Single and double output systems.

4th APRIL from dt.18.4.22 to	1st	3.10. Characteristics of wind power plant.
	2nd	REVISION
	3rd	4. Biomass Power: 4.1. Energy from Biomass.
	4th	4.2. Biomass as Renewable Energy Source
	5th	4.2. Biomass as Renewable Energy Source
5th APRIL from dt.24.4.22 to dt.30.4.22	1st	4.2. Biomass as Renewable Energy Source
	2nd	4.4. Combustion and fermentation.
	3rd	4.5. Anaerobic digestion.
	4th	4.6. Types of biogas digester.
	5th	4.7. Wood gassifier
1st MAY from dt.02.5.22 to dt.07.5.22	1st	4.8. Pyrolysis,.
	2nd	4.9. Applications: Bio gas, Bio diesel
	3rd	4.9. Applications: Bio gas, Bio diesel
	4th	REVISION
	5th	REVISION
2nd MAY from dt.09.5.22 to dt.14.5.22	1st	5. Other Energy Sources
	2nd	Tidal Energy: Energy from the tides
	3rd	Barrage and Non Barrage Tidal power systems.
	4th	5.2. Ocean Thermal Energy Conversion (OTEC). Part
	5th	5.2. Ocean Thermal Energy Conversion (OTEC).
3rd MAY from dt.16.5.22 to dt.21.5.22	1st	5.3. Geothermal Energy – Classification. Part
	2nd	5.3. Geothermal Energy – Classification.
	3rd	5.4. Hybrid Energy Systems.
	4th	5.5. Need for Hybrid Systems.
	5th	5.6. Diesel-PV
4th MAY from dt.23.5.22 to dt.28.5.22	1st	Wind-PV,
	2nd	Microhydel-PV.
	3rd	Microhydel-PV.
	4th	Electric vehicles.
	5th	hybrid electric vehicles.
5th MAY from dt.30.5.22 to	1st	REVISION
1st june from dt.01.6.22 to dt.3.6.22	1st	REVISION
	2nd	REVISION
	3rd	REVISION
2ND JUNE from dt.06.6.22 to dt.10.6.22	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION