

## ACADEMIC LESSON PLAN OF SUMMER 2022

Discipline: Electrical	Semester: 6 <sup>th</sup> (1 <sup>st</sup> Shift)	Name of the Teaching Faculty: SIGMA RAY
Subject: Renewable Energy	No. of days/per week class allotted:4p/week Tutorial:1p/week	Semester From: 10 <sup>th</sup> March 2022 to 10 <sup>th</sup> June 2022
Week	Class Date	Theory Topics
1 <sup>st</sup>	10/03/2022	1.1. Environmental consequences of fossil fuel use.
	10/03/2022	1.2. Importance of renewable sources of energy.
	11/03/2022	1.3 Sustainable Design and development.
	16/03/2022	1.4. Types of RE sources.
	16/03/2022	Tutorial
2 <sup>nd</sup>	17/03/2022	1.5. Limitations of RE sources
	17/03/2022	1.6. Present Indian and international energy scenario of conventional and RE sources
	18/03/2022	Holiday
	23/03/2022	2.1. Solar photovoltaic system-Operating principle.
	23/03/2022	2.2. Photovoltaic cell concepts
3 <sup>rd</sup>	24/03/2022	Tutorial
	24/03/2022	2.2.1. Cell, module, array, Series and parallel connections.
	25/03/2022	2.3. Classification of energy Sources.
	30/03/2022	2.4. Extra-terrestrial and terrestrial Radiation.
	30/03/2022	2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.
4 <sup>th</sup>	31/03/2022	Tutorial
	31/03/2022	2.6. Solar collectors, Types, and performance characteristics,
	01/04/2022	Holiday
	06/04/2022	2.6. Solar collectors, Types, and performance characteristics,
	06/04/2022	2.7. Applications: Photovoltaic - battery charger, domestic lighting, street lighting.
5 <sup>th</sup>	07/04/2022	2.7. Applications: Photovoltaic - water pumping, solar cooker, Solar Pond.
	07/04/2022	Tutorial
	08/04/2022	3.1. Introduction to Wind energy.
	13/04/2022	3.2. Wind energy conversion.
	13/04/2022	3.3. Types of wind turbines
6 <sup>th</sup>	14/04/2022	Holiday
	14/04/2022	Holiday
	15/04/2022	Holiday
	20/04/2022	3.3. Types of wind turbines
	20/04/2022	Tutorial
7 <sup>th</sup>	21/04/2022	3.4. Aerodynamics of wind rotors.
	21/04/2022	3.5. Wind turbine control systems; conversion to electrical power:
	22/04/2022	3.6. Induction and synchronous generators.
	27/04/2022	3.7. Grid connected and self-excited induction generator operation.
	27/04/2022	Tutorial
8 <sup>th</sup>	28/04/2022	3.8. Constant voltage and constant frequency generation with power electronic control.
	28/04/2022	3.9. Single and double output systems.
	29/04/2022	3.10. Characteristics of wind power plant.
	04/05/2022	4.1. Energy from Biomass.
	04/05/2022	Tutorial
9 <sup>th</sup>	05/05/2022	4.2. Biomass as Renewable Energy Source

## ACADEMIC LESSON PLAN OF SUMMER 2022

Discipline:	Semester	Name of the Teaching Faculty
Electrical	09/05/2022	4.3. Types of Biomass Fuels - Solid, Liquid and Gas.
	11/05/2022	4.4. Combustion and fermentation.
10 <sup>th</sup>	11/05/2022	Tutorial
	12/05/2022	4.5. Anaerobic digestion
	12/05/2022	4.6. Types of biogas digester.
	13/05/2022	4.6. Types of biogas digester.
	18/05/2022	4.6. Types of biogas digester.
11 <sup>th</sup>	18/05/2022	Tutorial
	19/05/2022	4.7. Wood gasifier.
	19/05/2022	4.8. Pyrolysis,.
	20/05/2022	4.9. Applications: Bio gas, Bio diesel
	25/05/2022	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
12 <sup>th</sup>	25/05/2022	Tutorial
	26/05/2022	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	26/05/2022	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	27/05/2022	5.2. Ocean Thermal Energy Conversion (OTEC).
	01/06/2022	5.2. Ocean Thermal Energy Conversion (OTEC).
13 <sup>th</sup>	01/06/2022	Tutorial
	02/06/2022	5.3. Geothermal Energy – Classification.
	02/06/2022	5.3. Geothermal Energy – Classification.
	03/06/2022	5.3. Geothermal Energy – Classification.
	08/06/2022	5.4. Hybrid Energy Systems.
14 <sup>th</sup>	08/06/2022	Tutorial
	09/06/2022	5.3. Geothermal Energy – Classification.
	09/06/2022	5.4. Hybrid Energy Systems.
	10/06/2022	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	Extra Class	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
15 <sup>th</sup>	Extra Class	Tutorial
	Extra Class	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	Extra Class	5.7. Electric and hybrid electric vehicles.
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16 <sup>th</sup>	Extra Class	Tutorial
	Extra Class	5.4. Hybrid Energy Systems.
	Extra Class	5.5. Need for Hybrid Systems.
	Extra Class	Revision - Biomass Power
	Extra Class	Tutorial

Signature of Teaching Faculty

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	22/03/2022	2.1. Solar photovoltaic system-Operating principle.
	23/03/2022	2.2. Photovoltaic cell concepts
	23/03/2022	Tutorial
3 <sup>rd</sup>	24/03/2022	2.2.1. Cell, module, array, Series and parallel connections.
	24/03/2022	2.2.1. Maximum power point tracking (MPPT).
	29/03/2022	2.3. Classification of energy Sources.
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	30/03/2022	Tutorial
4 <sup>th</sup>	31/03/2022	2.4. Extra-terrestrial and terrestrial Radiation.
	31/03/2022	2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.
	05/04/2022	2.6. Solar collectors, Types, and performance characteristics,
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	06/04/2022	Tutorial
5 <sup>th</sup>	07/04/2022	2.7. Applications: Photovoltaic - battery charger, domestic lighting, street lighting.
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	28/04/2022	Tutorial
	03/05/2022	Holiday
	04/05/2022	3.10. Characteristics of wind power plant.
	04/05/2022	4.1. Energy from Biomass.
9 <sup>th</sup>	05/05/2022	4.2. Biomass as Renewable Energy Source
	05/05/2022	4.3. Types of Biomass Fuels - Solid, Liquid and Gas.
	10/05/2022	Tutorial

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	Extra Class	Tutorial
	Extra Class	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	Extra Class	5.7. Electric and hybrid electric vehicles.
15 <sup>th</sup>	Extra Class	5.7. Electric and hybrid electric vehicles.
	Extra Class	Revision - Solar Energy
	Extra Class	Tutorial
	Extra Class	Revision - WindEnergy
	Extra Class	Revision-PV, Wind-PV, Microgrid-PV
16 <sup>th</sup>	Extra Class	Revision-PV, Wind-PV, Microgrid-PV
	Extra Class	Revision - Electric and hybrid electric vehicles
	Extra Class	Tutorial

Signature of Teaching Faculty