SYNERGY POLYTECHNIC, BBSR

The Lesson Plan

Descipline: **ELECTRICAL ENGINEERING**	Semester: **6th**	Name of the Teaching Faculty: **SOUMYASHREE MOHAPATRA**
Subject: **RENEWABLE ENERGY SYSTEM**	No of Days/per week class allotted: **04**	Semester from Date: **16.01.2024** to Date: 26.4.24 No of Weeks:
Week	Class Day	Theory/Practical Topics
1st **MODULE 1 Introduction to Renewable energy**	1st	Environmental consequences of fossil fuel use
	2nd	Importance of renewable sources of energy
	3rd	Sustainable Design and development
	4th	Types of RE sources
	5th	
2nd **MODULE 1 Introduction to Renewable energy**	1st	Limitations of RE sources
	2nd	Present Indian and international energy scenario of conventional and RE sources
	3rd	Solar photovoltaic system-Operating principle
	4th	Photovoltaic cell concepts
	5th	
3rd **MODULE 2 Introduction to Renewable energy**	1st	Cell, module, array
	2nd	Series and parallel connections
	3rd	Maximum power point tracking (MPPT)
	4th	Classification of energy Sources
	5th	
4th **MODULE 2 Introduction to Renewable energy**	1st	Extra-terrestrial and terrestrial Radiation
	2nd	Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant
	3rd	Solar collectors, Types and performance characteristics
	4th	Solar collectors, Types and performance characteristics
	5th	
5th **MODULE 2 Introduction to Renewable energy**	1st	Applications: Photovoltaic - battery charger
	2nd	street lighting
	3rd	solar cooker, Solar Pond.
	4th	domestic lighting, water pumping
	5th	

Soumyashree Mohapatra
Sign of Faculty

HOD

Principal 16/1/24

SYNERGY POLYTECHNIC, BBSR

The Lesson Plan

Discipline: **ELECTRICAL ENGINEERING**	Semester: **6th**	Name of the Teaching Faculty: **SOUMYASHREE MOHAPATRA**
Subject: **RENEWABLE ENERGY SYSTEM**	No of Days/per week class allotted: **04**	Semester from Date: **16.01.2024** to Date: 22.4.24 No of Weeks:
Week	Class Day	Theory/Practical Topics
1st **MODULE 3 WIND ENERGY**	1st	Introduction to Wind energy
	2nd	Wind energy conversion
	3rd	Types of wind turbines
	4th	Aerodynamics of wind rotors
	5th	
2nd **MODULE 3 WIND ENERGY**	1st	Wind turbine control systems; conversion to electrical power
	2nd	Induction and synchronous generators
	3rd	Grid connected and self excited induction generator operation
	4th	Constant voltage and constant frequency generation with power electronic control
	5th	
3rd **MODULE 4 Biomass Power**	1st	Single and double output systems
	2nd	Characteristics of wind power plant.
	3rd	Energy from Biomass
	4th	Biomass as Renewable Energy Source
	5th	
4th **MODULE 4 Biomass Power**	1st	Types of Biomass Fuels - Solid, Liquid and Gas
	2nd	Combustion and fermentation
	3rd	Anaerobic digestion
	4th	Types of biogas digester
	5th	
4th **MODULE 4 Biomass Power**	1st	Wood gassifier
	2nd	Pyrolysis
	3rd	Applications: Bio gas, Bio diesel
	4th	Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems
	5th	

Soumyashree Mohapatra
Sign of Faculty

D.L.P
HOD

16/1/24
Principal

SYNERGY POLYTECHNIC, BBSR

Lesson Plan

Discipline: **ELECTRICAL ENGINEERING**	Semester: **6th**	Name of the Teaching Faculty: **SOUMYASHREE MOHAPATRA**
Subject: **RENEWABLE ENERGY SYSTEM**	No of Days/per week class allotted: **04**	Semester from Date: **16.01.2024** to Date: 26.4.24 No of Weeks:
Week	Class Day	Theory/Practical Topics
1st **MODULE 5 Other Energy Sources**	1st	Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	2nd	Ocean Thermal Energy Conversion (OTEC)
	3rd	Geothermal Energy – Classification
	4th	Hybrid Energy Systems.
	5th	
2nd **MODULE 5 Other Energy Sources**	1st	Need for Hybrid Systems
	2nd	Diesel-PV
	3rd	Wind-PV
	4th	Microhydel-PV
	5th	
3rd **MODULE 5 Other Energy Sources**	1st	Electric vehicles
	2nd	Electric and hybrid electric vehicles
	3rd	Revision Module I
	4th	—do—.
	5th	
4th	1st	Revision Module II
	2nd	—do—.
	3rd	Revision Module III
	4th	—do—
	5th	
5th	1st	Revision Module IV
	2nd	—do—
	3rd	Revision Module V
	4th	—do—
	5th	

Soumyashree Mohapatra
Sign of Faculty

HOD

Principal 6/1/24