

Discipline:	ELECTRICAL	Semester: 6	Name of the Teaching Faculty: En. Swarna Manjani Samal,
Subject:	RENEWABLE ENERGY SYSTEMS	No. of Days/Week Class Allotted: 4	Semester From date: 10.3.2022 To date: 11.6.2022 No. of Weeks:
WEEK	Class Day	Theory Topics	
1 st	1 st	INTRODUCTION TO RENEWABLE ENERGY; Environmental consequences of fossil fuel use.	
	2 nd	Importance of Renewable Sources of Energy	
	3 rd	Sustainable Design & Development.	
	4 th	Types of R.E. Sources.	
	5 th		
2 nd	1 st	Limitation of R.E. Sources	
	2 nd	Present Indian & International Energy Scenario - Conventional and RE Sources	
	3 rd	Solar Photovoltaic System - Operating Principle	
	4 th	Photovoltaic Cell Concepts	
	5 th		
3 rd	1 st	Cell, module, array, Series and Parallel Connections	
	2 nd	Maximum Power Point Tracking (MPPT).	
	3 rd	Classification of Energy Sources	
	4 th	Extra-Terrestrial and Terrestrial Radiation	
	5 th		

Theory Topics

WEEK	Class Day	Topic
1/1/24	1st	Minimum angle, Zenith angle
	2nd	Hour angle, Irradiance
	3rd	Solar constant
	4th	Solar collectors
	5th	
2/1/24	1st	Types & Performance characteristics
	2nd	Applications: Photovoltaic battery charger
	3rd	Applications: Domestic lighting, Street lighting
	4th	Applications: Water Pumping, Solar Cooker, Solar Pond
	5th	
3/1/24	1st	WIND ENERGY: Introduction to Wind Energy
	2nd	Wind energy conversion
	3rd	Types of wind turbines
	4th	Wind turbine control systems
	5th	

Name of the Teaching Faculty: <u>Er. Sudarna Majhi (Sachin)</u>		Semester: <u>6</u>	
No of Days/Week Class Allotted: <u>4</u>		Semester From date: <u>10.3.2022</u> To date: <u>18.6.2022</u>	
No. of Weeks:		Theory Topics	
WEEK	Class Day		
7th	1st	Conversion to electrical power	
	2nd	Induction Generators	
	3rd	Synchronous Generator	
	4th	Grid Connected and self excited induction generator operation.	
	5th	Grid Connected & self excited induction generator operation.	
8th	1st	Grid Connected & Self excited induction generator operation.	
	2nd	Constant voltage & constant frequency generation with power electronic control.	
	3rd	Single & double output systems.	
	4th	Characteristics of wind power plant	
	5th		
9th	1st	BIOMASS POWER: Energy from biomass	
	2nd	Biomass as Renewable Energy source	
	3rd	Biomass as Renewable Energy source	
	4th	Types of biomass fuel - Solid, liquid & Gas	

WEEK	1st	Combustion & Fermentation
	2nd	Combustion & fermentation
	3rd	Anaerobic digestion
	4th	Types of biogas digester
	5th	
WEEK	1st	Types of biogas digester
	2nd	Wood gasifier
	3rd	Pyrolysis
	4th	Applications: Bio gas & Biodiesel
	5th	
WEEK	1st	OTHER ENERGY SOURCES: Tidal Energy: Energy from the tides
	2nd	Barrage and non-barrage: Tidal Power Systems
	3rd	Energy from Barrage and Non-Barrage Tidal Power Systems.
	4th	Ocean Thermal Energy Conversion (OTEC)
	5th	

ARIYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Semester: 5

Name of the Teaching Faculty: Engr. Saikat Kumar Dasgupta

No. of Days/Week Class Allotted: 4

Semester From Date: 10-03-2022 To 10-06-2022

No. of Weeks: 12

Class Day

Theory Topics

1st Clean Thermal Energy Conversion (CTEC)

2nd Clean Thermal Energy Conversion (CTEC)

3rd Clean Thermal Energy Conversion (CTEC)

4th Geothermal Energy - Classification

5th Classification and need for Geothermal Energy

6th Hybrid Energy Systems

7th Hybrid Energy Systems

8th Need for Hybrid systems

9th Diesel-PV, Wind P.V.

10th Microhydel - PV.

11th Electric Vehicles

12th Hybrid electric vehicles.