

DISCIPLINE: Electrical & Electronics Engg.	SEMESTER: 6 th Semester	NAME OF THE TEACHING FACULTY: Majji.Lalitha ,PTGF in EEE
SUBJECT: Renewable Energy Sources.	NO OF DAYS/PER WEEK CLASSES ALLOTTED: 4	SEMESTER FROM DATE: 22.12.2025 TO DATE: 18.04.2026 NO OF WEEKS: 15

Week	Class Day	Topics
		1. Energy Situation and Renewable Energy Sources.
1 st	1 st	Renewable and Non-renewable Energy Sources
	2 nd	Energy and Environment
	3 rd	Origin of Renewable Energy Sources ,Potential of Renewable Energy Sources.
	4 th	Direct-use Technology
	5 th	Tutorial
2 nd	1 st	ASSIGNMENT
		2. Solar Radiation & Collectors.
	2 nd	Solar Radiation Through Atmosphere
	3 rd	Terrestrial Solar Radiation
	4 th	Measurement of Solar Radiation
	5 th	Tutorial
3 rd	1 st	Classification of Solar Radiation Instruments
	2 nd	Flat Plate Collectors , Optical Characteristics
	3 rd	ASSIGNMENT
		3. Low-Temperature Applications of Solar Energy.
	4 th	Swimming Pool Heating
	5 th	Tutorial
4 th	1 st	Solar water Heating Systems
	2 nd	Natural Convection water Heating Systems
	3 rd	Solar Drying
	4 th	Solar Pond
	5 th	Tutorial
5 th	1 st	ASSIGNMENT
		4.Passive Space Conditioning & Collectors
	2 nd	Principle Space conditioning
	3 rd	Passive building concepts- Heating, Direct gain, Indirect Gain, Passive Cooling, Shading,Paints, .
	4 th	REVISION
	5 th	Tutorial
6 th	1 st	Construction of Concentrator
	2 nd	CLASSTEST
	3 rd	Energy losses
	4 th	ASSIGNMENT
	5 th	Tutorial
7 th		5.Solar Thermal Power Plants
	1 st	Introduction
	2 nd	Solar Collection System
	3 rd	Thermal Storage for Solar Power Plants
	4 th	REVISION
	5 th	Tutorial

8th	1 st	CLASSTEST
	2 nd	Capacity Factor and Solar Multiple
	3 rd	Energy Conversion
	4 th	ASSIGNMENT
	5 th	Tutorial
9th		6. Solar Photovoltaics
	1 st	Band Theory of Solids, Physical Processes in a Solar Cell , Solar Cell Characteristics
	2 nd	Equivalent Circuit Diagram of Solar Cells
	3 rd	Cell Types - Crystalline Silicon Solar Cell , Solar Cells for Concentrating Photovoltaic Systems , Dye - sensitized Solar Cell (DSC)
	4 th	Solar Module
	5 th	Tutorial
10 th	1 st	Further System Components -Solar inverters ,Mounting Systems, Storage Batteries ,Other System Components
	2 nd	Grid-independent Systems -System Configuration
	3 rd	Grid-connected Systems -Small Roof Top Systems ,Medium-scale PV Generator ,Centralized System
	4 th	ASSIGNMENT
	5 th	Tutorial
11 th		7. Wind Energy
	1 st	Wind Flow and Wind Direction, Wind Measurements
	2 nd	Measurement of Pressure Head, Hot wire Anemometer
	3 rd	Cup Anemometer (Robinson's Anemometer)
	4 th	Wind Direction Indicators
	5 th	Tutorial
12 th	1st	ASSIGNMENT
		8. Wind Energy Converters
	2 nd	Historical Development
	3 rd	Aerodynamic of Rotor Blade
	4 th	Wind Stream Profile -Buoyancy Coefficient and the Drag Coefficient
	5th	Tutorial
13 th	1 st	Components of a Wind Power Plant -Wind Turbine
	2 nd	Tower -Electric Generators – Foundation
	3 rd	Power Control -Slow Rotors
	4 th	Power Control Mechanism -Control of Fast Rotors
	5 th	Tutorial
14 th	1 st	ASSIGNMENT
		9. Energy economics
	2 nd	Present worth, Life cycle costing (LCC)
	3 rd	Annual Life cycle costing(ALCC), Annual savings
	4 th	calculations for Solar thermal system
	5 th	Tutorial
15 th	1 st	Solar PV system
	2 nd	Wind system
	3 rd	Biomass system
	4 th	ASSIGNMENT
	5 th	Tutorial

M. Balakrishna
Lecturer 22.12.25

D. Srinivas
HOD 22.12.25

P. Srinivas
Principal