Lesson Plan & Work-done Diary for AY: 2025-26, Even Semester

Course with Code: Renewable Energy Power Plants- BME654B				Faculty: Mr. SUKRUTH SAGAR B P			Semester & Section: 6th sem (Open Elective)	
Class No.	Date planned **(DD/MM)**	Topics to be covered	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-1: Introduction to Renewable Energy								
1		**Bridge course** on Energy and its importance, Classifications of Energy, Energy scenario	PPT					
2		Introduction to Renewable Energy:	PPT					
3		Overview of global energy demand and the need for renewable energy,	PPT					
4		Comparison of renewable and nonrenewable energy sources,	PPT					
5		Environmental benefits and challenges of renewable energy.	PPT					
6		Solar Radiation: Extra Terrestrial radiation, spectral distribution of extraterrestrial radiation,	PPT					
7		Solar constant, solar radiation at the earth's surface,	PPT					

8		Beam, diffuse and global radiation	PPT					
		QUIZ-1						
MODULE-2: Solar Power Plants								
9		Solar Power Plants: Measurement of Solar Radiation:	PPT					
10		Pyrometer, shading ring pyrheliometer, sunshine recorder, schematic diagrams and principle of working.	PPT					
11		Solar Thermal Conversion: Collection and storage, thermal collection devices.	PPT					
12		Fundamentals of solar energy and photovoltaic (PV) technology, Types of solar power plants: gridtied, offgrid, and hybrid systems,	PPT					
13		Design considerations for solar power plants: site selection, orientation, and shading analysis,	PPT					
14		PV system components and their functionalities,	PPT and field Visist					
15		Operation, maintenance, and performance monitoring of solar power plants	PPT					
		QUIZ-2						

MODULE-3: Wind Power Plants & Geothermal Energy Conversion								
16		Wind Power Plants: Basics of wind energy and wind turbine technology	PPT					
17		Types of wind turbines: horizontal axis and vertical axis;	PPT					
18		Wind resource assessment and site selection for wind power plants, Wind farm layout optimization and wake effects	PPT					
19		Grid integration and power system considerations for wind power plants	PPT					
20		Geothermal Energy Conversion: Principle of working,	PPT					
21		Types of geothermal station with schematic diagram	PPT					
22		Geothermal plants in the world, problems associated with geothermal conversion, scope of geothermal energy.	PPT					
		ASSIGNMENT-1						
MODULE-4: Tidal Power & Ocean Thermal Energy Conversion								
23		Tidal Power: Tides and waves as energy suppliers and their mechanics	PPT					
24		Fundamental characteristics of tidal power, harnessing tidal energy	PPT					
25		Advantages and limitations tidal power	PPT					

26		Ocean Thermal Energy Conversion: Principle of working,	PPT					
27		OTEC power stations in the world	PPT					
28		Problems associated with OTEC	PPT					
29		Biomass Power Plants: Biomass as a renewable energy source: types and characteristics	PPT					
		ASSIGNMENT-2						
MODULE-5: Biomass Power Plants & Hydrogen Energy								
30		Conversion technologies: combustion, gasification, and anaerobic digestion						
31		Biomass feedstock selection and availability, Environmental impacts and sustainability of biomass power plants,	PPT					
32		Integration of biomass power plants with other energy systems Hydrogen energy	PPT					
33		Properties of Hydrogen with respect to its utilization as a renewable form of energy, sources of hydrogen,	PPT					
34		Production of hydrogen, electrolysis of water,	PPT					
35		Thermal decomposition of water, thermos	PPT					
36		Chemical production biochemical production.	PPT					
		SEMINAR						

Summary of the Lesson Plan and Work-Done

	Activity	Planned	Actual	Remarks
1	Theory Classes	36		
2	Demonstrations & Lab Visit/ Experiment conduction	01		
2	Assignments/ Quizzes/ Seminar reports	05		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	03		
5	ICT based Teaching (% of usage in Curriculum)	95%		
Planning			**Execution**	
Faculty Signature:			**Faculty Signature:**	
HoD Signature:			**HoD Signature:**	