



# "PVCNSSK" GOVT. POLYTECHNIC BILASPUR, AT KALOL

Academic Lecture Plan (w.e.f 30.08.2022)

Name of the course teacher:	Er. Sandeep Kumar
Course	Diploma in Electrical Engg.
Semester/ Branch	5 <sup>th</sup> /EE
Course Title	Non Conventional Energy Sources

week	THEORY		PRACTICAL	
	Lecture Day	Topic (including assignment/test)		
1	1	Importance of Non-conventional sources of energy, Present energy scenario.	1	Demonstration/Study of Photo Voltaic cell.
	2	Role of non-conventional or renewable energy sources in present energy scenario.		
	3	Principle of conversion of solar radiation into heat.		
	4	Photo-Voltaic Cell, Electricity generation using Solar Energy.		
2	1	Applications of Solar Energy: Solar water heaters, Solar Furnaces, Solar cookers, Solar lighting, Solar pumping.	2	Demonstration/Study of Photo Voltaic cell.
	2	Main elements of small (Mini and Micro) hydro-electric power generation system.		
	3	control requirements in small hydro power plants.		
	4	advantages of small hydro power plants over large hydro power generation systems.		
3	1	Bio-mass Conversion Technologies.Wet and Dry processes.	3	Demonstration/Study of Solar Cooker.
	2	Methods for obtaining energy from biomass.		
	3	Power generation using biomass gasifier.		
	4	Wind Energy Conversion system.		

4	1	Types of wind mills.	4	Study of Solar based lighting system installed in the premises and prepare report on the features and functions of components used in the system.
	2	Electricity generation using wind mills.		
	3	control mechanism in wind energy conversion system, and energy storage systems.		
	4	Geo-thermal sources.		
5	1	Ocean thermal electric conversion.	5	Study of Micro/Pico Hydro Power plants installed in the vicinity and prepare a report.
	2	open and closed cycles, hybrid cycles.		
	3	Tidal power basics and schemes of electricity generation using tidal power.		
	4	Introduction, working principle and MHD system.		
6	1	Principle of working of fuel cell.	6	Study of a Wind turbine generator.
	2	conversion efficiency, work output.		
	3	emf of fuel cells, applications of fuel cells.		
	4	Basic working principle of thermo-electric power,		
7	1	Thermo-electric power generation, thermoelectric materials and their application.	7	Visit to biogas plants, domestic community/institution for study and demonstration of biogas plant.
	2	Importance of Non-conventional sources of energy, Present energy scenario.		
	3	Role of non-conventional or renewable energy sources in present energy scenario.		
	4	Principle of conversion of solar radiation into heat.		
8	1	Photo-Voltaic Cell, Electricity generation using Solar Energy.	8	. Study of a solar based water heating system in the institution premises and prepare a report.
	2	Applications of Solar Energy:		
		Solar water heaters, Solar Furnaces, Solar cookers, Solar lighting, Solar pumping.		
	3	Main elements of small (Mini and Micro) hydro-electric power generation system.		
	4	Main elements of small (Mini and Micro) hydro-electric power generation system.		

9	1	control requirements in small hydro power plants.	9	Demonstration/Study of Solar Cooker.
	2	advantages of small hydro power plants over large hydro power generation systems.		
	3	Bio-mass Conversion Technologies, Wet and Dry processes.	10	Study of Solar based lighting system installed in the premises and prepare report on the features and functions of components used in the system.
	4	Methods for obtaining energy from biomass.		
10	1	Power generation using biomass gasifier.	10	Study of Micro/Pico Hydro Power plants installed in the vicinity and prepare a report.
	2	Wind Energy Conversion system.		
	3	Geo-thermal sources.		
	4	Ocean thermal electric conversion.		
11	1	open and closed cycles, hybrid cycles.		
	2	Tidal power basics and schemes of electricity generation using tidal power.		
	3	Introduction, working principle and MHD system.		
	4	Principle of working of fuel cell, conversion efficiency, work output.		
12	1	emf of fuel cells, applications of fuel cells.		
	2	Basic working principle of thermo-electric power,		
	3	Thermo-electric power generation, thermoelectric materials and their application.		
	4	Principle of working of fuel cell.		
13	1	do		Visit to biogas plants, domestic community/institution for study and demonstration of biogas plant.
	2	Ocean thermal electric conversion.		
	3	do		
	4	do		
14	1-4	Revision and class Test		Study of a solar based water heating system in the institution premises and prepare a report.

Approved	HOD Sign.
Date: २०१९/८/२७	