Govt. Polytechnic, Nanakpur (Panchkula) Electrical Engineering Department
Lesson plan (for Even-semester as per revised curriculum and study scheme)

Name of Faculty		**Sh. Sushil Verma**		
Discipline		**Electrical Engineering**		
Semester		**2nd (Even- semester)**		
Subject		**Non- Conventional Energy Sources**		
Lesson Plan		**From March 2023 to June 2023**		
Work load (Theory		**(02+02)**		
Week	**Day**	**Topics**	**No.**	**Practical**
1	1	Discussion of Course Objective of NCES subject/ Syllabus,Unit :1 Introduction to Basics of Energy	1	Familiarization with the different components used in solar PV plant (standalone and grid connected system), solar water heating system, solar cooker, solar lighting etc.
	2	Classification of Energy-primary and secondary energy, commercial and non-commercial energy		
2	1	Unit :1 Importance of non-conventional energy sources, Present scenario, Future Prospectus	2	Calculate power flow of a stand-alone PV system with DC load, AC load and battery.
	2	Energy Scenario in India, Sector-wise energy consumption (domestic, industrial,agriculture etc)		
3	1	Unit : 2 Introduction to Solar Energy, Principle of conversion of solar radiation into heat, photo-voltaic cell	3	To demonstrate "I-V Characteristics and Efficiency of 1kWp Solar PV System" with varying radiation and temperature level.
	2	Electricity generation, Application of Solar Energy like solar water heaters		
4	1	Unit: 2 Solar Furnaces,Solar Cookers		
	2	Solar lighting, Solar pumping		
5	1	Unit: 3 Bio- energy,Bio-mass conversion technologies-wet and dry processes	4	Assemble the components of solar home lighting system & study the system.
	2	Revision and problem related to 2nd Unit/ discussion related to topic		
6	1	Unit: 3 Methods for obtaining energy from biomass	5	Assemble the components of solar water heating system system & study the system.
	2	Power generation by using gasifiers		
7	1	Unit : 4 Introduction to Wind energy,Wind Energy Conversion		
	2	Windmills,Electricity generation from wind-Types of wind mills		
8	1	Unit: 4 Local Control	6	Identify Troubleshoot solar PV panel, inverter and solar smart metering system.
	2	Energy storage		
9	1	Unit: 5 Introduction to Geo-thermal and Tidal Energy, Geo-thermal sources	7	Identify the specified components of a 1 KW Small Wind Turbine (SWT) system and study them.
	2	Ocean thermal electric conversion,Open and Closed cycles		
10	1	Unit : 5 Hybrid cycles,Prime movers for geo-thermal energy conversion	8	Estimation of wind speed using anemometer.
	2	Steam Generation and electricity generation		

11	1	Unit :- 6 Introduction to MHD	9	Study of charging and discharging behavior of a capacitor.
	2	Magneto hydro Dynamic (MHD)		
12	1	Unit : 7 Fuel Cells,Design and operating Principles of a fuel cell	10	Visit nearby renewable power plant and write specification of each components used in that plant.
	2	Conversion Efficiency		
13	1	Display of 2nd sessional marks and identification of weak students.	11	Study of charging characteristics of a Ni-Cd battery using solar photovoltaic panel.
	2	Unit : 7 Work output and e.m.f of fuel cells, Applications		
14	1	Unit : 8 Hydro Energy	12	Study the Performance of fuel cell.
	2	Mini & micro hydro plants		
15	1	Revision and problem related to 8th unit		
	2	Discussion of old question paper of HSBTE.		