

### RES LESSON PLAN

S.no	Unit no	Topic	Week	No of sessions planned	Mode of teaching BB/PPT/OHP/MM	Reference *	Remarks
1	I	<b>Principles of Solar Radiations</b>		1	BB	A1	
2		Introduction of solar energy its radiation, collection, storage and application		1	BB	A1	
3		It also introduces the Wind energy, Biomass energy, Geothermal energy and		1	BB	A1	
4		Role and potential of new and renewable source,		1	BB	A1	
5		the solar energy option, Environment impact of solar power		1	BB	A1	
6		physics of the sun, the solar constant, extraterrestrial and terrestrial solar		1	BB	A1	
7		solar radiation on titled surface,		1	BB	A1	
8		instruments for measuring solar radiation and sun shine, solar radiation data.		1	BB	A1	
9		Problems & Calculations.		1	BB	A1	
10	II	<b>Solar Energy Collection</b>		1	BB	A1	
11		Flat plate and concentrating collectors		1	BB	A1	
12		classification of concentrating collectors,		1	BB	A1	
13		orientation and thermal analysis,.		2	BB	A1	
14		advanced collectors		2	BB	A1	
15		<b>Solar Energy Storage and Applications</b>		1	BB	A1	
16		Different methods.		1	BB	A1	
17		Sensible, latent heat and stratified storage		1	BB	A1	
18		solar ponds. Solar Applications		1	BB	A1	
19		Solar heating / cooling technique, solar distillation and drying,		2	BB	A1	
	*	<b>For the respective topics please choose the proper reference from the list of TEXT/REFERENCE BOOKS/Webresources in Course Information Sheet.</b>					
		<b>Text Books</b>		<b>A1 - A10</b>			
		<b>Websites or e-books</b>		<b>B1 - B10</b>			
	<b>BB</b>	Black Board					
	<b>PPT</b>	Power Point Presentation					
	<b>OHP</b>	Over Head Projector					

	<b>MM</b>	Multimedia (Audio - Video )					
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20		photovoltaic energy conversion		1	BB	A1	
21	<b>III</b>	<b>Wind Energy</b>		1	BB	A1	
22		Sources and potential,		2	BB	A1	
23		horizontal and vertical axis windmills,		2	BB	A1	
24		performance characteristics,		2	BB	A1	
25		Betz criteria		2	BB	A1	
26		<b>Bio-mass</b>		1	BB	A1	
27		Principles of Bio-Conversion.		1	BB	A1	
28		Anaerobic / aerobic digestion,		2	BB	A1	
29		types of Bio-gas digesters, gas yield		2	BB	A1	
30		combustion characteristics of bio-gas utilization for cooking,		2	BB	A1	
31		I.C. Engine operation and economic aspects		1	BB	A1	
32	<b>IV</b>	<b>Geothermal Energy</b>		1	BB	A1	
33		Resources,		2	BB	A1	
34		types of wells,		2	BB	A1	
35		methods of harnessing the energy		2	BB	A1	
36		potential in India.		2	BB	A1	
37		OTEC,		2	BB	A1	
38		Principles utilization, setting of OTEC plants,		2	BB	A1	
39		thermodynamic cycles, Tidal and wave energy		2	BB	A1	
40		Potential and conversion techniques, mini – hydel power plants, and their economics.		2	BB	A1	
41	<b>V</b>	<b>Direct Energy Conversion</b>		1	BB	A1	
42		Need for Direct Energy Conversion		2	BB	A1	
43		Carnot cycle,		2	BB	A1	
44		limitations,		2	BB	A1	
45		principles of DEC		2	BB	A1	



