

Shree Ramkrishna Institute of Science & Technology

Lesson Plan

Name: Swadhin Chakrabarty

Designation: Asst Professor

Dept : Electrical Engg

Academic Year :2014-2015

Target Student: 5Th Sem EE

Subject: Non-conventional Energy

SL No	Subject	Period
	<i>Module-I</i>	
1	Energy sources : Introduction, world energy scenario- present & future	1
2	Classification-primary, secondary, supplementary sources, Development of electrical energy & its utilization, Commercial or Conventional sources,	1
3	Non-commercial or Non-conventional sources—solar energy, wind energy, tidal energy, geothermal energy, bio-mass & bio-gas energy, fuel cells	2
4	MHD and thermoelectric energy.	1
5	Renewable energy sources: advantages, obstacles to the implementation, prospects, role of our country as well as our state	1
	<i>Module-II</i>	
6	Solar energy: Introduction-solar constant & solar radiation at earth's surface	1
7	Solar radiation geometry (brief discussion)	1
8	Solar radiation measurements with short idea about different related instruments, total radiation (quantitative treatment only).	2
9	Principles of conversion of solar radiation into heat	1
10	Techniques of solar energy collection-types of solar collectors: flat plate collectors, typical liquid collectors, typical air collectors, parabolic trough collectors	2
11	Fresnel lens collector, point focusing collectors(parabolic type),concentrating non-focussing type collectors—brief descriptions & advantages of all.	2
12	Disadvantages of concentrating collectors over flat plate collectors-selective coatings with characteristics	2
13	Solar energy storage: different systems, thermal storage, sensible heat storage, solar pond—applications	3

14	Applications of solar energy: solar water heating-active & passive system, space coating	2
15	Solar electric power generation-principles of solar cells, conversion efficiency & power output.	2
16	Photovoltaic system of power generation-solar PV arrays	1
17	Solar cell connecting arrangements, storage batteries, inverters—advantages & disadvantages, applications	2
18	Solar pumping, solar furnace, solar green houses—processes & applications	2
	Module-III	
19	Bio-energy: Basic bio conversion mechanism, source of waste	1
20	Composition & calorific value of bio-gas, bio-gas generation-classification of plants	2
21	Types of bio-gas plants-simple digesters, materials used for bio-gas generation	2
22	Site selection, fuel properties of bio-gas, utilization	2
23	Methods obtaining from biomass conversion (in brief), Gasifier-classifications & applications	1
24	Wind energy: basic principle of conversion,	1
25	Nature & power of wind, maximum power, forces on the blades of windmills	2
26	Wind data and energy estimation (quantitative treatment only), site selection	2
27	Basic components of wind energy conversion system (WECS), classifications & advantages of WECS.	2
28	Scheme of electric generation-generator control & load control, storage	1
29	Environmental aspects, applications, interconnecting systems	1

Total= 46 class

Signature of The faculty & date

Signature of The Respective HOD & date

Reviewed by principal & date