

P.G Diploma in Solar Renewable Energy

PGDREOE-206: Management of Solar Energy

(52 Hours)

Sub Code: PGDREOE-206	No. of Lecture Hours Per week : 04
Total Ccredit:04	Internal Marks : 30 and Exam Marks: 70=100

Objectives of the paper :

- To know Solar system and solar energy
- To understand solar application
- To understand Renewable Energy, Its Sources and future prospects

Module- I

10 Hours

Solar system and solar energy :

Solar system : energy from the Sun, Solar spectrum, Solar insulation, Solar Constants, Irradiance, Warming up to the solar resource. Solar Energy: Solar cell Materials and Structure, fundamentals of solar cells.

Role of Government, Industrial and financial institutions; status, problem, solutions.

National objectives and vision beyond 2002-22; issues and challenges.

Module- II

10 Hours

Solar photovoltaic systems and applications:

Solar potential in india, solar power generation. Applications of solar energy, applications of solar PV system. Types of PV installations, Types of outdoor solar lightings. Solar energy science kits and solar toys.

Module- III

10 Hours

Solar panels;

Types of solar panels, solyndra technology, combining solar panels in to a solar array.

System design consideration of solar panels / solar power facts, seasonal effects.

Module- IV

12 Hours

Renewable Energy, Its Sources and future prospects:

Definition of energy, kinds of energy, deferent sources of energy, their merits and reserves, remunerable energy sources, energy service and efficiency, improvement, energy in sustainable future, indirect and direct solar energy: Indirect sources- wind, water at high places, ocean, biomass, nuclear power, geothermal energy, Direct sources – Heat and light from the sun.

Module- V

10 Hours

Operation and Maintenance :

Operation : Synchronization. Maintenance of PV Modules, routine maintenance, Preventive maintenance, Inspecting and maintaining PV system, Mechanical maintenance, Electrical maintenance. Taking care of battery banks, wiring connections, module wiring

References:

- Chetan Singh (2013) Solar Photovoltaic Technology and Systems: A Manual for Technicians, Trainers and Engineers, Solanki PHI: (1 January).
- Chetan Singh (2015) Solar Photovoltaics: Fundamentals, Technologies and Applications, Solanki PHI: 3 edition.
- Dr. H. Naganagouda (2014), Solar Power Hand Book , Director, NTC for solar technology , Banagluru.
- Fai (2002)Ms office xp complete bpb publication ISBN 81-7656-564-4. MS access 2002 fast & easy the Wempen PHI.isbn81-203-1893
- Fai (2002)MS windows xp home editing complete BPB publications I.T. tools and applications, A. Mansoor, Pragya publications.