

P.G Diploma in Solar Renewable Energy

PGDRE-201: Operation and Maintenance of Plant

(52 Hours)

Sub Code: PGDRE-201	No. of Lecture Hours Per week : 04
Total Ccredit:04	Internal Marks : 30 and Exam Marks: 70=100

Objectives of the paper :

- To know installation and Maintenance of Plants
- To understand Solar panels and its functions
- To understand the safety and operating services

Module- I

10 Hours

Commissioning of plant :

Commissioning system, Trouble suiting , check list, the commissioning process, process for grid- direct system.

Module- II

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

Module- III

10 Hours

Maintenance and care .

Maintenance and care , safety precautions, mounting instructions, site selection, climate conditions, unpacking and storage. Integrated quality, environment, health and safety policy.

Module- IV**12 Hours****Solar panels;**

Types of solar panels, silyndra technology, combining solar panels in to a solar array. System design consideration of solar panels / solar power facts.

Solar energy-solar cell materials structures, fundamentals of solar cells. Warming up to solar resource, seasonal effects

Module- V**10 Hours****CONTROL FOR SOLAR SYSTEMS:**

Basic concepts of process control, discontinuous and continuous mode operation. Introduction to proportional, integral and derivative control. Basic and Advanced control of solar plants- basic control algorithms, adaptive and optimal controls. Model based predictive control strategies, frequency domain control and robust optimal control.

References :

- Kothari D.P. and Singal k.C 2011) Renewable Energy Sources and Emerging Technologies, New Arrivals –PHI; 2 edition
- D.Mukherjee (2011) Fundamentals of Renewable Energy Systems Paperback – , New Age International Publisher; First edition
- Dr. H. Naganagouda (2014), Solar Power Hand Book, Director, NTC for solar technology , Banagluru.
- B.H.Khan Non conventional energy resources