

Detailed Syllabus of Course

Sl. No.	Topic	Hours
		Theory/Practical
1.	Basics of Electricity Voltage, Current, DC Power, AC Power, Energy, Harmonics, Solar Radiation, Net Metering, Measurement of Electrical and Non Electrical Quantities	07/03
2.	Solar Photovoltaic Solar Cell and its function, Solar Technologies, Solar Cell Parameters, Efficiency of Solar Cell, Solar PV Module, Rating of Solar PV Module, PV Module Parameters, Efficiency of PV Module, Measuring Module Parameters.	20/10
3.	Solar Photovoltaic Module Array Connection of PV Module in Series and Parallel, Estimation and Measurement of PV Module Power, Selection of PV Module.	05/05
4.	Batteries Battery function, Types of Batteries, Battery parameters, Selection of Battery, Series Parallel combination of Batteries, Batteries for Photo voltaic System, Application of Batteries in Solar PV system, Battery Maintenance and Measurements, Battery Fault Detection and Test, Battery Installation for PV system.	08/02
5.	Charge Controller, MPPT and Inverter Power MOSFET and IGBT, Opto coupler, Buck and Boost Converter, Fly back Converter, Full Bridge Inverter, Voltage and Current Feedback, DC to DC power converter, DC to AC Converter, AC to DC Converter, Battery Charge controller, Maximum Power Point Tracking, Specification of Inverter and charger.	40/10
6.	Electrical Wiring Types of Wire, Wire Sizing, Junction Box, DC cabling, AC cabling, Array Combiner Box, AC Distribution Box, Energy Metering, Electrical Grounding, Earth Resistance and Insulation Resistance Measurements	30/10
7.	Solar PV System Design and Integration Solar Radiation Energy Measurements, Estimating Energy requirement, Types of Solar PV System, Design methodology for SPV system, Design of Off Grid Solar Power Plant, Case studies of 3KWp Off grid Solar PV Power Plant, Design and Development of Solar Street Light and Solar Lantern, Off Grid Solar power Plant.	50/30
8.	Installation, Trouble Shooting and Safety Installation and Trouble shooting of Standalone Solar PV System, Maintenance of Solar PV System, Safety in installation of Solar PV System, Maintenance of Solar PV System.	20/10
9.	Project Installation, Commissioning, Trouble shooting of 1KWp off Grid Solar Power Plant, Check list for Solar PV Plant Installation and Commissioning.	0/90
Total Theory / Lecture Hours:		180 hrs
Total Practical / Tutorial Hours:		170 hr
Total Hours:		350 hrs