



AQAR 2020-21

**1.3 Curriculum Enrichment**

**1.3.2 Value Added Course Report- Physics**



**DEPARTMENT OF PHYSICS  
St. JOSEPH'S COLLEGE (Autonomous)  
TIRUCHIRAPALLI – 620002**

Nationally Accredited at A++ Grade (4 Cycle) by NAAC & College with Potential for Excellence by UGC

DBT – STAR & DST – FIST Sponsored College

Phone: 0431 – 4226438.

Fax: 0431 – 2701501 Website:

*Date: 16-02-2021*

**VALUE ADDED COURSE**

**SOLAR POWER (PV SYSTEM) INSTALLATION AND  
MAINTENANCE**

To develop the skill and entrepreneurship of the students, department of Physics offers a Value Added Course on Solar power (PV system) installation and maintenance. This course consists of theory cum demonstration sessions and handful practical training. By joining this Value Added Course, the students can acquire sound knowledge and solid skill Solar power installation and maintenance. Interested students can register their name in the department. Theory and practical classes will conduct outside the working hours.

**Duration of the course is 40 hours**

Theory cum demonstration: 15 hours

Practical Training classes: 25 hours

**The course comes on 24.02.2021**

**Time: 2.00 pm to 4.00 pm**

**Fees: Rs. 500 /=-**

**Contact Person: Dr. B. Kanickairaj**

  
Head of the Department

**Department of Physics**  
**St. Joseph's College (Autonomous), Trichy – 620002.**

**Value Added Course**  
**Solar Photovoltaic (PV) System Installation and Maintenance**

***UNIT I: Basics***

**Basics of Electricity:** Voltage, Current, DC and AC Power. Measurement of Electrical Quantities.  
**Introduction to Solar Photovoltaic Energy:** Solar Radiation Energy, Estimating Energy requirement  
**Solar Photovoltaic conversion.** Solar Photovoltaic Solar Cell, Solar PV module, Solar PV Module Arrays.

***UNIT II: Batteries, Charge Controller, MPPT and Inverter***

Types of Batteries, Battery parameters, how to select Battery, Batteries for Photo voltaic System,  
Application of Batteries in Solar PV system.  
AC to DC Converter, DC to AC Converter, DC to DC power converter, Charge controller, Maximum Power Point Tracking

***UNIT III: Solar PV System Design and Integration***

Types of Solar PV System, Design methodology for SPV system., Wires & Cables, Mechanical structure Design

***UNIT IV: Installation***

Preparing for Installation – Procurement of Components – Civil and Mechanical work – DC wiring – AC wiring

***UNIT V: Trouble Shooting and Safety***

Visual quality inspection – system testing and commissioning – Preventive maintenance – system monitoring – system diagnosis and troubleshooting