



Syllabus: Certificate in Solar Computer Basics (CSCB)

- **Duration:** 1 Month
- **Eligibility:** 8th Pass / Basic Science interest

Evaluation Scheme

- **Full Marks:** 200
- **Theory Paper:** 100 Marks
- **Practical/Project Works:** 80 Marks
- **Internal Assessment/Viva voce:** 20 Marks

Course Syllabus

This course provides a foundational understanding of how to power computer systems using solar energy, covering hardware efficiency, solar components, and sustainable computing practices.

Module 1: Computer Hardware & Power Efficiency

- **Basic Computer Parts:** Identifying low-power vs. high-power hardware.
- **Power Consumption:** Understanding Watts, Volts, and Amps in computing.
- **Energy-Efficient OS:** Configuring Windows/Linux for maximum battery life.

Module 2: Solar Energy Fundamentals

- **Solar Panels:** Types of Photovoltaic (PV) cells and wattage ratings.
- **Storage:** Understanding Batteries (Lead Acid vs. Lithium-ion) for backup.
- **Inverters & Charge Controllers:** Converting solar energy for computer use.

Module 3: Solar-Computer Integration

- **Sizing the System:** Calculating panel and battery requirements for a PC/Laptop.
- **Cabling & Safety:** Proper wiring, earthing, and protection from surges.
- **Maintenance:** Cleaning panels and monitoring battery health.

[Image of a solar charge controller wiring diagram]

Module 4: Practical Setup & Troubleshooting

- Assembling a Solar Power Station: Step-by-step setup for a desktop/laptop.
- Troubleshooting: Diagnosing power drops, poor charging, and inverter failures.
- Case Study: Setting up a solar-powered digital classroom or office.

Module 5: Final Capstone Project (Solar PC Build)

- **Project Task:** Students will design a power plan for a specific computer setup.
- **Requirements:** Calculate the daily load (Wh), select the appropriate solar panel and battery size, and present a wiring layout.
- **Submission:** Live demonstration of a small solar circuit powering a computer peripheral (like a monitor or router).

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