Report on

The Role of Solar in the Energy Transition and Sustainability in India.

A session cum workshop on **"The Role of Solar in the Energy Transition and Sustainability in India."** was organized for engineering students on 13/02/2026 at Electrical Department with the objective of bridging the gap between technical knowledge and industry expectations. In 2026, solar energy is critical for India to achieve its 50% non-fossil fuel capacity goal, with capacity hitting over 140 GW by early 2026. It offers 90% reduced electricity bills, drives industrial decarbonization, boosts domestic manufacturing (requiring local cells by June 2026), and provides energy independence against rising tariffs.

Key aspects of solar energy in India 2026:Economic & Energy Security: As the world's third-largest solar market, India relies on solar to reduce dependence on imported, high-cost conventional energy. Solar adoption is driven by 3–5 year payback periods and 90% reductions in energy bills.

Rapid Growth & Policy Support: By Jan 2026, India reached over 140.6 GW of solar capacity. The 2026 budget strongly supports this via increased Capital Expenditure (Capex) and ₹1,000 crore for Battery Energy Storage Systems (BESS) to ensure 24/7 power. Manufacturing Boom: To bolster domestic capacity, new regulations mandate locally produced solar PV cells in modules from June 2026. Key Trends: High-efficiency TopCon and bifacial modules are becoming standard. Solar is increasingly integrated with smart grids to reduce transmission losses by 30%. Sustainability: Solar is pivotal for reducing India's carbon footprint, with 60% of renewable growth projected from solar through 2030. To spread the awareness and enhance the knowledge of students that can also motivate a few students to have their future research innnovation in the said solar domain department invited Dr A.K Panchal, Professor in the Department of Electrical Engineering, Sardar Vallabhbhai National Institute of Technology Ichchhanath, Surat-395007, Gujarat, India to deliver seminar/workshop to GEC VALSAD Electrical Engineering students.

The session highlighted how solar energy has emerged as a **central pillar in India's transition toward a sustainable and low-carbon energy system**. With rising energy demand, climate change concerns, and dependence on fossil fuels, India is rapidly shifting its focus to renewable sources, with solar power leading this transformation. The practical session was conducted to study the working and performance of a solar photovoltaic (PV) module. The main objective was to understand how solar energy is converted into electrical energy and to observe the electrical characteristics of the PV module under different operating conditions.

Overall, the session was highly informative and motivational. In this session 127 students and 5 faculty members participated in the session from electrical engineering department. The students actively engaged in the discussion.