

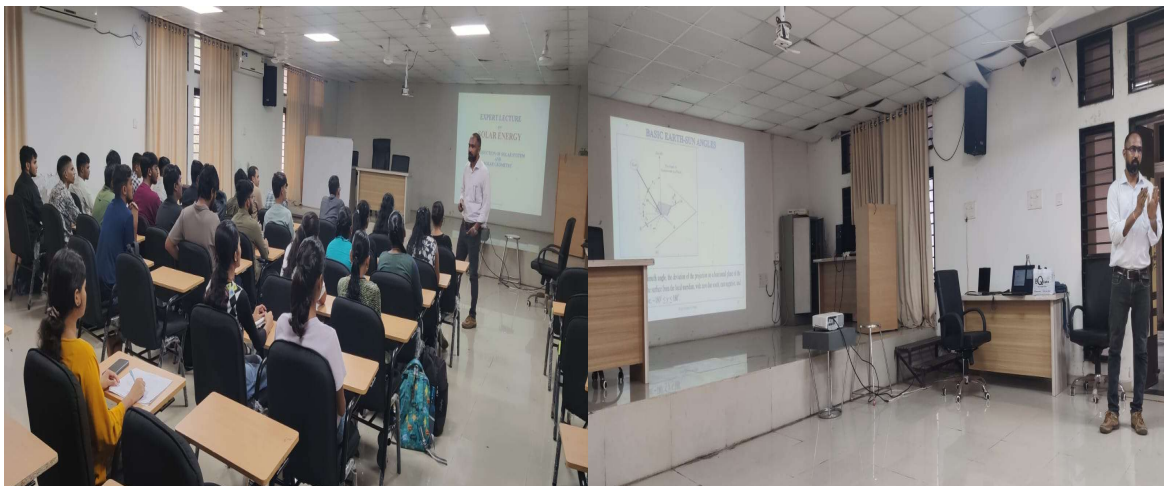


Government Engineering College, Valsad

Report

A technical session on “**Innovative Engineering Approaches for Solar Radiation Estimation on Horizontal and Inclined Surfaces**” was organized for the students of the Electrical Engineering Department On 29/07/2026 delivered by Dr. S. K. Patel (Asst. Prof. MED). The session focused on the importance of solar radiation assessment in the planning, design, and performance analysis of **solar photovoltaic (PV) and solar thermal systems**.

Dr. S. K. Patel explained the fundamental concepts of **solar radiation on horizontal and inclined surfaces**, including solar geometry, solar altitude and azimuth angles, angle of incidence, and the effect of surface inclination and orientation on received solar energy. Various engineering approaches for estimating global, direct, and diffuse solar radiation were discussed.



The session also highlighted the application of **mathematical models, empirical correlations, simulation tools, and data-driven/AI-based techniques** for accurate solar radiation estimation. Students gained knowledge about optimizing the tilt angle of solar panels and improving the efficiency of solar energy systems under different geographical and climatic conditions.

The session provided students with practical insights into **solar energy resource assessment, PV system design, and innovative approaches for renewable energy applications**. It enhanced their understanding of how engineering methods and modern computational techniques can be integrated for efficient utilization of solar energy.

Total 46 students from Electrical Engineering actively participated in the session. Through interactive sessions and engaging discussions, students gained theoretical insights some practical skills and perspectives essential for their future endeavors.