
Departmental Seminar

| | |
|---------------|---|
| Seminar Title | : Performance Evaluation of Various PLC Techniques Evolved in FPPT Considering Variable Irradiation and Load Conditions |
| Speaker | : Ved Pravir (223ee4271) |
| Supervisor | : Prof. Tanmoy Roy Choudhury (9776432644) |
| Venue | : Seminar Room (EE205) |
| Date and Time | : 23 May 2025 (05:00 PM) |
| Abstract | : The rapid integration of solar photovoltaic (SPV) systems into existing power grids has introduced challenges such as overvoltage, frequency fluctuations, and voltage instability. While Maximum Power Point Tracking (MPPT) is a well-established method for extracting maximum power from SPV systems, situations may arise where power generation exceeds demand. In such cases, the system must operate at points other than the Maximum Power Point (MPP), referred to as Flexible Power Points (FPP). The output power of SPV systems is influenced by variations in solar irradiance, temperature, and the connected load. To address these fluctuations, the duty cycle of the DC-DC converter is dynamically adjusted to operate in either MPP or FPP modes based on system requirements. To mitigate issues such as grid overloading, Power Limiting Control (PLC) strategies, including Direct Power Control (DPC), Current Limiting Control (CLC), and PV Voltage Control, are implemented and thoroughly analysed. This paper presents a simulation study aimed at enhancing the effectiveness of SPV panels by determining ideal operating parameters under varying climatic conditions. The study explores multiple scenarios based on these variations and discusses their implications in detail. |