
Departmental Seminar

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| Seminar Title | : Development and Execution of a Model Predictive Control Technique for Hybrid Microgrid |
| Speaker | : Pranati Rani Purohit (523ee2008) |
| Supervisor | : Prof. Arnab Ghosh |
| Venue | : Seminar Room (EE-205) |
| Date and Time | : 21 Jul 2025 (4:00 PM) |
| Abstract | : An effective two-way DC-DC buck-boost converter control approach in a hybrid photovoltaic (PV)-wind system with battery as the energy storage is described in this study for managing power flow. Meeting load demand, controlling power flow from various sources, and charging the battery on demand are all goals of the proposed system. To control the charging and discharging of batteries as well as to track power from wind and solar photovoltaic sources, the two-way buck-boost converter is controlled using the model predictive control and power algorithm to stabilize the DC-bus voltage and to ease the output of hybrid energy sources, which is unpredictable. The simulation results demonstrate the capability of the system operation under varying photovoltaic irradiance and wind speed. The simulation outcomes derived from MATLAB/Simulink validate the controller's performance. |