
Registration Seminar

Seminar Title : Power Management in Renewable Energy based Hybrid Storage System

Speaker : Shyama Sundar Padhi (Rollno : 919ee5049)

Supervisor : Sanjeeb Mohanty

Venue : EE Department (New Seminar Room-EE 401)

Date and Time : 16 Apr 2025 (5:15 PM)

Abstract : A PV integrated hybrid energy storage system has been proposed in this work for mitigating the effect of climate change on power generation. The uncertainty of availability of solar energy greatly effects the power quality and stability of the system. On order to maintain a sustainable and reliable operation of hybrid microgrid, a combination of battery and supercapacitor energy storage unit is used. The energy storage unit tracks the average and transient power change, which provides faster DC link voltage control. The average power distribution between the power generation and energy storage device is maintained through SOC of a battery. An efficient energy management architecture design is also presented in this work. The supercapacitor increases the battery life by reducing the current stress during sudden change in power between the load and the generated power. The PV integrated hybrid energy storage system has been simulated using MATLAB/Simulink software.

Key Words: Microgrid, power management system, hybrid energy storage system, battery, supercapacitor.