

RECTPCL FUNDED PROJECT

National Institute of Technology Meghalaya

DEPARTMENT OF ELECTRICAL ENGINEERING

PROGRESS SEMINAR OF SRF'S

The first progress seminar of SRF's has been scheduled on **04.08.2017** and **10.08.2017** to evaluate the work carried associate with RECTPCL funded project. The brief details of scheduled progress seminars are enclosed below:

Name of the SRF Bonu Ramesh Naidu

Title of Seminar Control and power management in a grid-interactive DC microgrid

Abstract A microgrid is a superset of controllable DGs, energy storage devices (ESD) and local loads which can seamlessly transit between grid-connected and island mode of operation to increase the reliability of the entire system. Hybrid AC-DC microgrid (HMG) architectures are of immense research interest as they come with the individual advantages of both AC and DC systems. In this regard, a PMU based grid-connected multi-microgrid with multiple HMG's is presented. Important research challenges and possible solutions are listed. Further, a grid-connected DC system comprising of solar PV array, battery and super capacitor is presented and suitable control and energy management is developed with an objective to maximize the synchronized grid integration of the renewable energy and stabilize the DC sub-grid. Such a system can effectively act as a building block for a HMG.

Presentation Details

Date : 04.08.2017 **Time** : 04:00 PM **Venue** : Power Electronics Lab

Name of the SRF Gaurav Bhatt

Title of Seminar Application of PMU based real-time synchrophasor data for fault identification and characterization

Abstract The phasor measurement unit (PMU) based synchrophasor measurements enable the real-time monitoring of the power system data. This real-time data is sampled at a very faster rate using the PMUs in comparison to the existing conventional data recorders in the power system network. The data obtained from the PMU measurements can be analyzed for several applications in power system monitoring and control. These applications range from power system voltage stability monitoring, power system protection, power system control and real-time visualization of the power system variables. The future smart grids incorporating multiple microgrids with increasing inclusion of renewable energy sources will require a fast and accurate detection mechanism for any event occurring in the power system network. The real-time synchrophasor data obtained from PMUs can help in realizing an efficient monitoring and control for the future grid. The disturbances in the power system network (i.e. faults, generation-load mismatch, DER islanding etc.) can lead the system to severe consequences like voltage collapse or total system blackout in the absence of an early detection mechanism. The PMU data can be utilized for an early and accurate detection, localization and characterization of fault in the power system network. The application of PMU based synchrophasor data for fault detection can significantly improve the efficiency and accuracy of the power system operators to maintain the stable operation of the system with real-time execution of the control actions.

Presentation Details

Date : 10.08.2017 **Time** : 04:00 PM **Venue** : Power Electronics Lab