

# **RECTPCL FUNDED PROJECT**

## **National Institute of Technology Meghalaya**

DEPARTMENT OF ELECTRICAL ENGINEERING

### **PROGRESS SEMINAR OF SRF**

The second progress seminar of SRF has been scheduled on **08.09.2018** to evaluate the work carried associate with RECTPCL funded project. The brief details of scheduled progress seminar are enclosed below:

**Name of the SRF**      NARENDRA BABU P

**Title of Seminar**      Real-time FPGA Implementation of Adaptive Current Control Strategy based Active Power Filter for Power Quality Enhancement in Grid connected RES Systems.

**Abstract**              This presentation presents grid connected photovoltaic (PV) system for power quality enhancement using a proposed fuzzy logic proportional integral derivative-echo state network (FLPID-ESN) for reference current generation in the active power filter (APF). The APF synchronously blocks the voltage swell and sags, unbalance and distortions on the grid side voltages as well as current harmonics on the load side. The PV system is executed using incremental conductance maximum power point technique (MPPT) and connects to the utility grid. The shunt APF is implemented using a proposed ESN technique, used to separate the fundamental weight elements from the load currents and to compute the three phase reference currents, consequently generate PWM signals for the Shunt APF system. This paper also executes a FLPID adaptive feedback controller used to maintain the DC bus voltage constant. The proposed shunt APF reference current generation method is notably improved system performance and also mitigates the voltage and current harmonics. The proposed reference current generation strategy is mathematically examined and the results are presented using MATLAB/SIMULINK under various steady state and dynamic conditions. Finally the entire system is validated through real time prototype developed in the laboratory using vertex 7 vc707 evaluation platform.

#### **Presentation Details**

**Date**    : 08.09.2018      **Time**    : 05:00 PM      **Venue:** Power Electronics Lab