

**Report on one day workshop on  
Electric Vehicle Power Converter Design**

**On**

**29<sup>th</sup> February, 2020**

The following faculty members from Electrical Engineering Department were deputed for attending workshop on Electric Vehicle Power Converter Design at PSG College of Technology, Coimbatore on 29<sup>th</sup> February, 2020:

1. Dr. Kanwardeep Singh
2. Dr. Arvind Dhingra

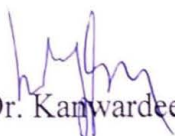
The workshop was conducted by Er. Sreeram Tharun from Trident Techlabs, Bengaluru. He demonstrated the modeling of Electric vehicles converter system using PSIM software. The workshop started with introduction of Electric vehicles essentials namely Drive system, battery model, charging system and vehicle load modeling. After the brief introduction, the hands on session were conducted on PSIM software. The software is very versatile software and can be used to model almost any electrical device or system. It has special feature of curve capture in which we can capture the characteristic curve of any device (SCR, MOSFET etc.) and can use it in our model. The software is user friendly as it offers a variety of shortcuts for commonly used commands. The measurement and monitoring of parameters can be done using probes. The battery charging and discharging circuits were modeled and discussed in detail. The two methods of battery charging constant current and constant voltage were also explained. The various terms associated with charging and discharging operations like derating factor, discharge rate were also explained. Modeling of battery management system to avoid uneven charge distribution in event of a battery bank was discussed. Modeling of bidirectional converter, integrating motor with inverter were explained.

Outcomes:

The faculty became aware of:

- The use of PSIM software for modeling.
- Charging and discharging mechanism of various types of battery
- Converter design
- Integration of battery with motor

  
Dr. Arvind Dhingra

  
Dr. Kanwardeep Singh