



**Knowledge Network of  
Indian Institute of Technology Gandhinagar**  
TEQIP-III Initiative (MHRD, Govt. of India, NPIU & World Bank)

## **Winter training program on Electrical Machines and Power Electronics**

**Date: December 16-21, 2019 (6-days)**

**Reporting time:** December 16, 2019 at 10 AM

**Venue:** IIT Gandhinagar, Palaj, Gandhinagar

**Target group:** Electrical Engineering Faculty Members, PG students,  
Senior (4<sup>th</sup> Year) UG Students

**Register at:** [www.iitgn.ac.in/kn](http://www.iitgn.ac.in/kn)

**Deadline: November 30, 2019**

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Response of an electrical motor depends on the excitation and the motor. Based on the load requirements, there was a need to choose a motor with matching torque-speed characteristics. With the developments in semiconductor devices, it is possible to alter the characteristics of chosen motor just by changing the excitation. For different DC and AC motors, torque control below and above base-speed will be explained.

In wind energy conversion system, variable-speed topology is preferred for maximum extraction of wind power. This requires the use of power electronic converters between the generator and the grid.

With the presence of commutator and brushes, the arcing occurs in DC machines. As a result, the DC machines require more maintenance. Is it possible to get rid of mechanical commutator?

Is it possible to improve the dynamic response of induction motor?

**Participation in this summer school is invited through registration.**

### **Topics for discussion**

Overview on various motors and characteristics; Overview on semiconductor devices, Altering supply characteristics using power electronic converters (PEC); Speed control of motors using PEC; Wind energy conversion system; Brushless DC motor; Vector control

### **Tentative schedule for this summer program**

(a) Morning session: Lectures for 3 hours

(b) Afternoon session: Tutorial or lab session for 3 hours

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### **Instructors:**

**Prof. Ragavan K (IITGN), Prof. M. A. Mulla (SVNIT, Surat), Prof. S. Rajendran (IITGN)**