E6-202 Aug 2:1

Design of Power Converters

Instructor

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Teaching Assistant

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Department: Electronic Systems Engineering

Course Time: Mon, Wed, 9-10am

Lecture venue: Dept Class room

Detailed Course Page:

Announcements

Brief description of the course

The course focuses on design of switched mode converter circuits. The following topics are discussed with emphasis on design: gate drives for BJT, MOSFET and IGBT,heatsink selection, snubber circuits, buck, boost and buck-boost converters, isolated converters like forward, pushpull, half bridge, fullbridge and flyback types, design of magnetics for inductors and transformers, inverters, PWM generation, space vector PWM, d-q axis theory for 2 and 3 phase applications, intro to induction machine design and winding.

Prerequisites

Electric circuits, power semiconductor devices.

Syllabus

Gate drives for BJT, MOSFET and IGBT,heatsink selection, snubber circuits, buck, boost and buck-boost converters, isolated converters like forward, pushpull, half bridge, fullbridge and flyback types, design of magnetics for inductors and transformers, inverters, PWM generation, space vector PWM, d-q axis theory for 2 and 3 phase applications, intro to induction machine design and winding.

Course outcomes

To be able to design any power converter circuit for a given set of specifications and to develop a prototype.

Grading policy

Test1 and Test2 - 15 marks each

Laboratory work - 15 marks

Laboratory exam - 15 marks

Final exam - 40 marks

Assignments

Resources