Course announcement

EECS 598: Power Electronic Design

October 20, 2011

Course No.: EECS 598

Credit Hours: 3

Instructor: Juan Manuel Rivas Davila.

Lectures: Monday & Wednesday 3:00 pm–4:30 pm

Prerequisites: EECS 418 or permission of the instructor

Description: Managing the relentless increase in the demand for energy is set to become an important challenge for our generation. To make strides in facing this challenge, we will need to widen the diversity of our energy sources and to ramp up the efficiency of the systems that convert one form of energy into another. To meet these goals, we will need better and more efficient Power Electronic systems to improve our ability to interconnect these sources to the nation's electrical grid while minimizing electrical loss. Moreover gains in efficient power conversion at the appliance/load level will bring an extended battery life to our ubiquitous portable devices and improve the utilization of the energy infrastructure.

In this course, we will study the practical issues related to the practical design of power electronic converters. We will also explore the tradeoffs involved in selecting among the different circuits used to convert ac to dc, dc to ac and back to dc over a wide range of power levels suitable for different applications. In Power Electronic Design, as a multidisciplinary field, we will discuss circuits, control, magnetic design, thermal management and semiconductors and put this knowledge in a very practical context.