

EECS 598 Special Topics, Winter 2017

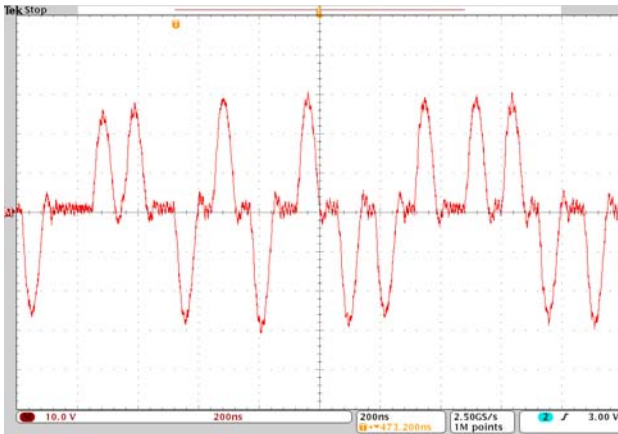
## Advanced Topics and the Design of Power Electronics



(Adv. Topics & Des. Pwr. Elect.)

Tues/Fri 2:00—3:30 pm

Transformative technologies in energy conversion will be smaller, cheaper, and more efficient. This class will address some advanced topics and techniques in power electronics and the craft of design through case studies. Topics may include



switched capacitor circuits, resonant power conversion, magnetics, wireless power transfer, and instrumentation, among others. Advanced methods in the analysis, manufacturing, and control of power electronics will also be discussed. Design cases may include audio switching power amplifiers, photovoltaic switch capacitor circuits, resonant converters for wireless power transfer, and solid-state lighting drivers, among others. Grading will be based on 3-4 hw problem sets, 3-4 design problems, and a term-long final project

with topics, specifications, and milestones agreed upon by the instructor and by teams composed of up to two students. Grading for the final projects will include 15-20 minute in-class presentations and short papers of each individual student's contribution.



Prerequisites: EECS 418 and EECS 460 or reasonable comfort with classical feedback and control, or equivalents, or with instructor permission.

Course Director: Al-Thaddeus Avestruz, EECS

For additional information contact [avestruz-AT-umich.edu](mailto:avestruz-AT-umich.edu)