Advanced Topics in Power Electronics

ECE 7841

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Advanced topics of power electronics, beginning with utility and vehicle applications and evolving into advanced circuit topologies and control.

Prerequisites and Co-requisites:
Prereq: 5025 (624).

Course Goals / Objectives:
- State-of-the-art power electronics circuits and control methods will be introduced
- Circuit analysis and simulation skills will be enhanced
- Practical design guidelines will be utilized in multiple week projects

Course Topics:
- FACTs devices and other applications of power electronics in electric power system
- Vehicle applications of power electronics
- Advanced circuits 1: isolated dc/dc converters
- Advanced circuit 2: multilevel inverters
- Advanced circuit 3: Z-source inverter/converters
- Circuit application example: MW solar power plant
- Multiple-week project

Designation:
Elective