694_07 Power Electronics in Vehicle Applications

ABET Classification
EE Program of Study
This course IS NOT an EE core course.
This course CAN be used as an EE technical elective.

CpE Program of Study
This course IS NOT a CpE core course.
12 hours of CpE technical electives must be on a prescribed list.
This course IS NOT on that list.

Catalog Description
Typical vehicle applications of power electronics circuits; power electronics design considerations and constraints in hybrid electric vehicles.

Level Credits Class Meeting Pattern
UG 1 1, 48-min cl.

Course Prerequisites
Prereq: ECE 323
Co-requisite: ECE 624.

Quarters of Offering
Au Qtr.

General Info, Cross-listings, Exclusions, etc.
Cross-listed with: n/a
General Info:
Exclusion:
Courses that require this as a direct prerequisite: none
Prereq by topic:  Electronic instrumentation; diode and transistor models for amplifiers and switches; electronics of digital circuits; multiple transistor circuit analysis

Learning Outcomes (with ABET Criterion 3 Student Outcomes for Undergraduate Courses)
1. To provide an introduction to power electronic applications in vehicles. (Criterion 3(a))
2. Students will develop analytical techniques through the study of the widely used power converter circuits. (Criterion 3(k))
3. Students will be introduced to applications of power electronics in hybrid electric vehicles and related design considerations. (Criterion 3(c))

Text(s) and Other Course Materials
Author(s) Publisher
no text

References (supplemental reading)
handouts via CARMEN

Topics and (# of Lectures)
General applications of power electronics in vehicles (1)
Vehicle design based considerations (2)
Design project discussions (6)
Representative Lab Assignments
n/a

Grading Plan
Project 100%

Relationship to ABET Criterion 3 Student Outcomes (a-k)
See Learning Objective listed above.

Relationship to Additional ABET Student Outcomes
CpE (l), (m), (n)
EE (l), (m), (n)