



Wayne County Community College District

COURSE SYLLABUS

AUT 152 Introduction to Electric and Fuel Cells

CREDIT HOURS: 4.00

CONTACT HOURS: 60.00

COURSE DESCRIPTION:

This course is designed to help prepare the student to enter the automotive repair and service industry in the area of alternative fuels and advance technology vehicle. It is an intensive study of vehicle electric and fuel cell theory, application, installation, diagnosis, service and safety regulations.

PREREQUISITES: AUT 117

EXPECTED COMPETENCIES:

Upon successful completion of this course, the student will:

- Learn fundamentals of advanced batteries, supercapacitors and fuel cells for electrification of land-marine, and space vehicles.
- Learn battery sizing and optimization for electrification vehicles.
- Learn hybridization of various energy conversion devices for vehicle electrification
- Understand battery management systems and state-of-charge estimation.
- Understand fundamentals of active and passive thermal management systems.
- Learn safety aspects of high voltage devices, particularly for hybrid and full electric vehicles.
- Learn various battery testing procedures and verification of battery performances.
- Learn battery packaging from cells to modules and packs.
- Learn codes and standards for electrification of vehicles.
- Learn battery safety, and global market analysis for large format batteries.

ASSESSMENT METHODS:

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:

90%-100% = A

80%-89.9%= B

70%-79.9%= C

60%-69.9%= D

<60% = E