

# MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

## COURSE OUTLINE

**DEPT. AUTO**

**COURSE NUMBER: 2108**

**NUMBER OF CREDITS: 3**

**Lecture: 2 Lab: 1 OJT: 0**

Course Title:
Introduction to Hybrid Electric Vehicle

Catalog Description:
Introduction to Hybrid Electric Vehicle discusses basic hybrid electric vehicle safety procedures, common hybrid electric component fundamentals, and current hybrid vehicle design. It provides an introduction to hybrid electric vehicle test equipment and procedures.

Prerequisites or Necessary Entry Skills/Knowledge:
AUTO 1100 and AUTO 1111

**FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)**

- ☐ Goal 1: Communication: By meeting the following competencies:
- ☐ Goal 2: Critical Thinking: By meeting the following competencies:
- ☐ Goal 3: Natural Sciences: By meeting the following competencies:
- ☐ Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
- ☐ Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
- ☐ Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
- ☐ Goal 7: Human Diversity: By meeting the following competencies:
- ☐ Goal 8: Global Perspective: By meeting the following competencies:
- ☐ Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
- ☐ Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered
Hybrid vehicle components
Hybrid safety protocols
Hybrid vehicle maintenance and repair

Student Learning Outcomes
Define series and parallel power flow
Identify common hybrid vehicle powertrain sub-systems
Describe Hybrid vehicle components and identify different manufactures' Hybrid Technology
Identify advantages of Hybrid vehicle technology
Identify and perform safe high voltage service disconnect procedures

Identify Hybrid vehicle repair tools
Analyze high voltage cables
Perform insulation checks
Evaluate high voltage batteries
Perform power law calculations
Analyze scan data
Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations
*The required outcomes follow the Auto Service Technician (AST) model of the National Automotive Technical Education Foundation (NATEF) certification program.

**Is this course part of a transfer pathway: Yes ☐ No ☒**

Revised Date: 6/2021