Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the College-wide Curriculum Committee.

**DEPT:** Automotive  
**COURSE NO:** AUTO 2146

**COURSE TITLE:** Body Computer Controlled Electrical Systems

**CATALOG DESCRIPTION:** Describe the theory of operation, diagnosing and repair of electrical components such as power windows, power seats, ABS brakes, power steering, automatic computer control transmission, A/C climate control, theft deterrent systems, and chassis electronics control systems.

4 Cr (1 lecture, 3 lab, 0 other)

**AUDIENCE:** Auto students

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

Area : by meeting the following competencies:

Area : by meeting the following competencies:

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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: NA

**LENGTH OF COURSE:** 28 days @ 4 hours a day = 112 hours

**THIS COURSE IS USUALLY OFFERED:**

Every year X Every other year

Fall Spring X Summer Undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:
ACADEMIC CONTENT: Identify the advanced theory of operation, diagnosing and repair of electrical components such as power windows, power seats, automatic computer control transmission, theft deterrent systems, and chassis electronics control systems.

THINKING SKILLS:
A. To use different situations to diagnose & troubleshoot problems in electrical system.
B. To be able to think through how all of the internal parts of the electrical system work

COMMUNICATIONS SKILLS:
A. Participation in class discussion.
B. Complete written reports and assignments
C. To improve oral communications skills through class presentations

HUMAN DIVERSITY:
A. To understand the roles of the technician in communicating with a diverse population.
B. To work effectively in teams comprised of diverse backgrounds.
C. To express personal philosophies on diverse issues.

TOPICS TO BE COVERED:
1. Electrical system fundamentals
2. Electric components of the power steering
3. Power windows and seats
4. Automatic computer control transmission
5. Theft deterrent systems
6. Chassis electronics control systems

COURSE LEARNING OUTCOMES: To gain overall knowledge of how computers talk on the Can-Buss system, which include; PCM, BCM, ABS, TCM, IPC, etc. The required outcomes
follow the Auto Service Technician (AST) model of the National Automotive Technical Education Foundation (NATEF) certification program.

LEARNING/TEACHING TECHNIQUES USED IN THIS COURSE:

X Collaborative Learning X Problem Solving
Student Presentations X Interactive Lectures
Creative Projects Individual Coaching
X Lecture X Films/Videos/Slides
X Demonstrations X Other (describe below)
X Lab Periodical Research and Summary

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

X Reading X Tests X Individual Projects
X Oral Presentations X Worksheets X Collaborative Projects
X Textbook Problem X Papers Portfolio
X Group Problems Term Paper
X Other: NATEF Tasks

EXPECTED STUDENT LEARNING OUTCOMES:

Upon completion of this course the student will be able to:

1. Identify high-voltage circuits of electric or Hybrid electric vehicle
2. Identify electronic modules, security systems, radios ,and other accessories
3. Diagnose brighter than normal lights
4. Inspect and test gauges and gauge sending units for abnormal gauge readings
5. Diagnose SIR restraint systems

For every task in Electrical/Electronic Systems, the following safety requirement must be strictly enforced:

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.

"This course will cover the characteristics of hazardous wastes and its safe handling, storage, and disposal."

**Veteran Services:** Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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