



## MASTER COURSE OUTLINE

A. AUTO 2432 Advanced Electronics

B. COURSE DESCRIPTION:

This course covers reading and interpreting wiring diagrams and the operation and servicing techniques as they relate to the repair of exterior lighting, interior lighting, the instrument cluster, cruise control, power operated systems, keyless entry, driver memory settings, body computers, and supplemental restraint systems. This course, along with other program courses, satisfies the task requirements set forth in Section III of the National Institute for Automotive Service Excellence (ASE) accreditation. Prerequisites: AUTO 1431 or instructor approval.

**(3 Cr – 2 lect, 1 lab)**

C. Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):

- ILO 1: critical thinking (*Core Theme Goal 2*)
- ILO 2: awareness of the larger global community (*Core Theme Goal 7 or 8*)
- ILO 3: ethical, engaged citizenship (*Core Theme Goal 9 or Goal 10*)
- ILO 4: communication and collaboration (*Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration*)

E. MAJOR CONTENT AREAS:

- Strategy diagnosis
- Charging system diagnosis and repair
- Lighting systems
- Instrument panels and gauge displays
- Electrical accessories
- Body computer systems
- Anti-theft systems
- Air bag systems

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

<u>GOAL TYPE</u>	<u>OBJECTIVES</u>	<u>OUTCOMES</u>
**Critical Thinking	Students will be able to	The student will successfully
	gather factual information and apply it to a given problem in a manner that is	1. use a test light to diagnose electrical problems.

	relevant, clear, comprehensive, and conscious of possible bias in the information selected.	<ol style="list-style-type: none"> <li>use a digital volt ohm meter (DVOM) to diagnose electrical problems.</li> <li>use a digital storage oscilloscope (DSO) to diagnose electrical problems.</li> </ol>
<u>CS</u>	analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.	<ol style="list-style-type: none"> <li>interpret test results to develop a diagnosis of an automotive electronics fault.</li> </ol>
<u>CS</u>	demonstrate an understanding of the operation of various standard equipment items and various automotive accessories.	<ol style="list-style-type: none"> <li>read vehicle wiring diagrams.</li> <li>use wiring diagrams to diagnose circuit boards.</li> <li>test alternator output.</li> </ol>
<u>CS</u>	repair electrical and electronic standard equipment items and various automotive accessories.	<ol style="list-style-type: none"> <li>use various types of test equipment.</li> <li>use a DSO to check diode operation.</li> <li>use a scan tool to check charging system for proper operation.</li> <li>test operation of vehicle accessories.</li> </ol>

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

The student will need access to and use of a laptop computer capable of running required software.

H. COURSE CODING INFORMATION: Course Code S/Class Maximum 24; Letter Grade

Revision date: 10/31/14; 11/29/17; 07/08/22

AASC Approval date: 12/12/17; 10/18/22

<b>*Riverland Community College Disciplines</b>	<b>MnTC Goal Number</b>
Communication (CM)	<b>1</b>
Natural Sciences (NS)	<b>3</b>
Mathematics/Logical Reasoning (MA)	<b>4</b>
History and the Social & Behavioral Sciences (SS)	<b>5</b>
Humanities and Fine Arts (HU)	<b>6</b>

<b>**Riverland Community College Core Themes</b>	<b>MnTC Goal Number</b>
Critical Thinking (CT)	<b>2</b>
Human Diversity (HD)	<b>7</b>
Global Perspective (GP)	<b>8</b>
Ethical and Civic Responsibility (EC)	<b>9</b>
People and the Environment (PE)	<b>10</b>

\*These five MnTC Goals have been identified as Riverland Community College Disciplines.

\*\* These five MnTC Goals have been identified as Riverland Community College Core Themes.

NOTE: The Minnesota Transfer Curriculum “10 Goal Areas of Emphasis” are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

Riverland