MASTER COURSE OUTLINE

A. AUTO 1431 Basic Automotive Electronics

B. COURSE DESCRIPTION:

This course covers fundamental theory, design, diagnosis, and repair of electrical and electronic systems. This course, along with other program courses, satisfies the task requirements set forth in Section VI of the National Institute for Automotive Service Excellence (ASE) accreditation.
(3 Cr – 1 lect, 2 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:

- Electricity
- Basic electrical tests and repairs
- Ohms Law and its relationship to electricity
- Magnetism and its relationship to electricity
- Electrical components
- Wiring diagrams
- Solid state components and computers

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

GOAL TYPE	**OBJECTIVES** **Students will be able to**	**OUTCOMES** **The student will successfully**
**Critical Thinking	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	1. perform various battery, alternator, and starter tests. 2. diagnose a battery parasitic draw.
CS	develop an understanding of the basic principles of electricity and electronics.	1. describe the relationship of volts, amps, and ohms.

		2. perform Ohms Law calculations. 3. describe the laws of electromagnetism. 4. convert meter readings to base units. 5. wire a relay circuit.
CS	demonstrate the procedures to perform basic electrical diagnosis on automobiles.	1. repair an alternator and starter. 2. analyze wiring diagrams and repair wiring problems. 3. use a digital multi meter to measure volts, amps, and ohms on various circuits.

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: 03/09/11; 11/29/17; 07/08/22
AASC Approval date: 12/12/17; 10/18/22

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

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

*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.