



MASTER COURSE OUTLINE

A. DESL 1105 Applied Electrical Systems Lab

B. COURSE DESCRIPTION:

This course covers application of electrical circuit analysis, the use of special tools and equipment, and basic electrical system troubleshooting. Construction and diagnosis repair of the charging systems and electrical starting system on commercial vehicles and farm equipment are also included. Topics include basic system, system diagnosis, component repair, and troubleshooting of lights and electrical accessories. This course, along with other program courses, satisfies the task requirements set forth by the Automotive Service Excellence (ASE) Education Foundation accreditation. Prerequisite: DESL 1104.
(3 Cr – 0 lect, 3 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:

- Diagnosis and Repair of Electrical Circuits
 - Digital multimeter uses
 - Troubleshooting electrical/electronic circuits
 - Electrical wiring connector and terminal repair
- Battery
 - Operating principles
 - Maintenance
 - Battery testing
 - Cable inspection and assembling
- Charging Systems
 - Alternator operations
 - Alternator construction/rebuild
 - Charging system failures and testing

- Cranking Systems
 - Starter operation
 - Starter construction/rebuild
 - Starting system failure and testing
- Chassis Electrical Systems
 - Lighting systems
 - Auxiliary electrical equipment
 - Rapid checking of truck circuits

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

<u>GOAL TYPE</u>	<u>OBJECTIVES</u> Students will be able to	<u>OUTCOMES</u> The student will successfully
<u>**Critical Thinking</u>	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 major and minor electrical tasks related to trucks.
<u>CS</u>	use shop electrical equipment.	1. demonstrate the use of electrical equipment by completing shop tasks.
<u>CS</u>	analyze circuits.	1. build different types of circuits and test them for operation and function.
<u>CS</u>	use a multi-meter.	1. demonstrate the use of a multi-meter on different types of circuits.
<u>CS</u>	diagnose starting and charging systems.	1. perform electrical tasks related to both starting and charging systems.

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: 01/10/20; 10/24/23

AASC Approval date: 04/19/11; 3/24/20; 12/11/23

*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.