



MASTER COURSE OUTLINE

A. AUTO 2352 Rear Axle/Four Wheel Drive

B. COURSE DESCRIPTION:

This course covers the theory, principles, diagnosis and repair procedures related to drivetrains. This course, along with other program courses, satisfies the task requirements set forth in Section VIII of the ASEEF (Automotive Service Excellence Education Foundation) accreditation.

(3 Cr – 1 lect, 2 lab)

C. **Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses 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:

- Principles of braking
- Brake hydraulics
- Brake power assist systems
- Disc and drum and parking brake system
- Anti-lock and traction control systems

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. identify the relationship between transfer case failures and axles failures.
<u>CS</u>	articulate and defend the actions they would take on various environmental issues.	1. apply proper waste disposal procedures in the automotive repair industry.

<u>CS</u>	disassemble and reassembly a Hypoid Final Drive set making the proper adjustments.	1. inspect all parts for damage. 2. measure and adjust ring gear backlash and run out, pinions depth, and preload and check tooth contact pattern. 3. replace axle seal. 4. remove and install axle hub for a full floating axle.
<u>CS</u>	disassemble various 4x4 transfer cases.	1. remove and replace a transfer case from a four-wheel drive vehicle. 2. disassemble and reassemble the front hubs of four-wheel drive vehicles. 3. remove and replace a drive shaft and universal joints. 4. disassemble and reassemble constant velocity joints. 5. remove and replace a C/V joint shaft and the C/V boot. 6. disassemble and reassemble training aid transfer case.
<u>CS</u>	identify power flow.	1. explain transfer case high and low range planetary gear power flow. 2. explain final drive power flow. 3. repair customer vehicles as assigned by the instructor.

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 25; Letter Grade

Revision date: 03/09/11; 11/29/17; 10/23/23

AASC Approval date: 12/12/17; 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.