



MASTER COURSE OUTLINE

A. AUTO 1423 Brake Systems

B. COURSE DESCRIPTION:

This course includes principles, theory, service, and repair of complete brake systems, including anti-lock brake and traction control systems. 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.

(4 Cr – 2 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. explain the relationship between observed malfunctions and the required corrective action.
<u>CS</u>	articulate and defend the actions they would take on various environmental issues.	1. explain the need for proper asbestos containment procedures when performing brake-related work.

<u>CS</u>	service brake systems on cars and light trucks properly and safely.	1. perform a complete drum brake job and machine drums. 2. perform complete disc brake job and machine discs. 3. perform hydraulic repairs and bleed brake system. 4. inspect and adjust wheel bearings and parking brake system.
<u>CS</u>	demonstrate the procedures to perform the correct procedures to make sure the vehicle is returned to the road in a safe condition.	1. describe and analyze brake fluid quality. 2. explain and test the operation of the brake light warning system. 3. explain and test the operation of the power assist systems. 4. explain and test the operation of brake control valves. 5. repair brake lines.
<u>CS</u>	demonstrate the procedure to diagnose and repair anti-lock brake systems.	1. explain the theory and operation of anti-lock brake systems. 2. diagnose and repair anti-lock brake 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 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.