



MASTER COURSE OUTLINE

A. AUTO 1451 Clutches and Manual Trans/Transaxles

B. COURSE DESCRIPTION:

This course covers standard automotive and light truck clutches, manual transmissions and transaxles. Design, adjustment, and overhaul are included. 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.
(1 Cr – 0 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:

- Transmissions: power flow, gears, and gear ratios
- Transmission design and operation
- Transmission overhaul
- Transmission/transaxle diagnosis
- Clutch operation and parts
- Clutch overhaul
- Clutch diagnosis

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.	<ol style="list-style-type: none"> 1. identify parts of a manual transmission. 2. identify worn or failed parts of a transmission. 3. explain power flow in each gear of the transmission.
<u>CS</u>	service clutch systems on both front and rear wheel drive vehicles.	<ol style="list-style-type: none"> 1. understand how to perform a clutch job on a front wheel drive vehicle.

		2. understand how to perform a clutch job on a rear wheel drive vehicle.
<u>CS</u>	identify manual transmission failures and repairs.	1. disassemble manual transmission/transaxle. 2. reassemble manual transmission/transaxle.

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; 12/12/17; 07/08/22

AASC Approval date: 01/23/18; 03/26/19; 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.

Riverland