



## MASTER COURSE OUTLINE

### A. AUTO 1321 Steering and Suspension

### B. COURSE DESCRIPTION:

This course covers the theory, diagnosis, and repair of electronic and conventional suspension and steering systems. Wheel balance theory and operation are included. 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:

- Suspension and steering types, components and operation
- Ball joints, springs, shock absorbers, and suspension repair
- Steering systems
- Wheel bearings and hubs
- Electronic suspension and steering controls

### F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

| <u>GOAL TYPE</u>          | <u>OBJECTIVES</u><br>Students will be able to                                                                                                                              | <u>OUTCOMES</u><br>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. analyze customer's complaint.<br>2. use analytical skills to determine the proper repair for the given problem. |
| <u>CS</u>                 | articulate and defend the actions they would take on various environmental issues.                                                                                         | 1. relate the consequences of improper disposal of automotive chemicals such as those found in shock absorbers.    |

|           |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>CS</u> | repair suspension and steering system problems on cars and light trucks.                                              | <ol style="list-style-type: none"> <li>1. identify suspension types and the parts and adjustments for each type.</li> <li>2. perform repair on Short-Long arm suspensions.</li> <li>3. perform repairs on Mac-Pherson Strut suspensions.</li> <li>4. describe and test operation of power-assist steering.</li> <li>5. perform repairs on rack and pinion steering systems.</li> <li>6. perform repairs on re-circulating ball steering systems.</li> <li>7. test for problems involving noise, harshness, and vibration complaints.</li> </ol> |
| <u>CS</u> | demonstrate the proper procedures needed to ensure the vehicle is repaired to a condition which is safe for the road. | <ol style="list-style-type: none"> <li>1. identify the need for safe and proper suspension repair procedures.</li> <li>2. follow published manufacturer procedures for suspension, repair.</li> <li>3. test and repair electronic steering systems.</li> </ol>                                                                                                                                                                                                                                                                                  |

#### 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; 10/23/23; 12/02/25

AASC Approval date: 12/12/17; 12/11/23; 01/20/26

\*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.

\*\*These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

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.

| <b>*Riverland Community College<br/>Core Themes</b> | <b>MnTC Goal<br/>Number</b> |
|-----------------------------------------------------|-----------------------------|
| Critical Thinking (CT)                              | <b>2</b>                    |
| Human Diversity (HD)                                | <b>7A, 7B, 7A/B</b>         |
| Global Perspective (GP)                             | <b>8</b>                    |
| Ethical and Civic Responsibility (EC)               | <b>9</b>                    |
| People and the Environment (PE)                     | <b>10</b>                   |

| <b>**Riverland Community College<br/>Discipline Areas</b> | <b>MnTC Goal<br/>Number</b> |
|-----------------------------------------------------------|-----------------------------|
| Communication (CM)                                        | <b>1</b>                    |
| Natural Sciences (NS)                                     | <b>3</b>                    |
| Mathematics/Logical Reasoning (MA)                        | <b>4</b>                    |
| History and the Social & Behavioral<br>Sciences (SS)      | <b>5</b>                    |
| Humanities and Fine Arts (HU)                             | <b>6</b>                    |