

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. AUTO

COURSE NUMBER: 2113

NUMBER OF CREDITS: 3

Lecture: 1 Lab: 2 OJT 0

Course Title:

Manual Drivetrain and Axles

Catalog Description:

Manual Drivetrain and Axles describes the fundamentals of conventional and light truck manual transmission and clutches. Contents will include power flow, design, adjustment, overhaul procedures, diagnosis, and repairs.

Prerequisites or Necessary Entry Skills/Knowledge:

TRAN 1100

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)

- Goal 1: Communication: By meeting the following competencies:
- Goal 2: Critical Thinking: By meeting the following competencies:
- Goal 3: Natural Sciences: By meeting the following competencies:
- Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
- Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
- Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
- Goal 7: Human Diversity: By meeting the following competencies:
- Goal 8: Global Perspective: By meeting the following competencies:
- Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
- Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered

Manual transmission and clutch fundamentals

Manual transmission systems

Clutch systems

Testing and repair of manual transmission and clutch systems

Student Learning Outcomes

Identify and interpret drive train concerns; determine needed action

Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots, and springs; determine needed action.

Inspect flywheel and ring gear for wear and cracks; determine needed action.

Inspect and/or replace clutch pressure plate assembly, clutch disc, release bearing, linkage, and pilot bearing/bushing.
Inspect, adjust, lubricate, and/or replace shift linkages, brackets, bushings, cables, pivots, and levers.
Diagnose and repair drive shaft and half shaft, universal and constant-velocity (CV) joint. (Front, Rear, All-wheel, Four-wheel drive)
Diagnosis and Repair drive axels
Diagnose and repair four-wheel drive/all-wheel drive components
Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations
*The required outcomes follow the Auto Service Technician (AST) model of the Board of the National Institute for Automotive Service Excellence (ASE)

Is this course part of a transfer pathway: Yes No

Revised Date: 04/2022