



South Central College

AST 1412 Clutch and Driveline

Course Outcome Summary

Course Information

Description	This course covers standard automotive and light truck clutches. Content includes design, adjustment, overhaul, diagnosis, and repair. Also included are mechanical and hydraulic systems. The drive line section includes phasing, alignment and balance. (Prerequisite: Admission into the Automotive Service program and AST1112 or instructor approval)
Total Credits	2
Total Hours	48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	1/16
Lab	1/32

Pre/Corequisites

Admission into the Automotive Service program

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Exhibit professionalism

Learning Objectives

Identify safety practices
Demonstrate shop safety

2. Research drive train system operation

Learning Objectives

Identify, interpret drive train concern; determine necessary action
Describe various noise, vibration, and harshness diagnostic techniques
Define motor and transmission mount diagnosis

3. Identify clutch components

Learning Objectives

Examine clutch disc designs

Identify clutch power flow

Diagnose clutch noise, binding, slippage, pulsation and chatter; determine necessary action

Diagnose clutch noises

4. Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots and springs; perform necessary action

Learning Objectives

Service hydraulic clutch master, slave cylinder, lines, hoses, check for fluid leaks, use proper fluid type per manufacturer specification, bleed and fill system

Service clutch cables/automatic adjuster mechanisms

5. Inspect and replace clutch pressure plate assembly, clutch disc, release (throw-out) bearing and linkage and pilot bearing/bushing (as applicable)

Learning Objectives

Inspect standard and dual mass flywheel and ring gear for wear and cracks, determine necessary action

Examine clutch bellhousing, engine block, core plugs, rear main engine oil seal, alignment dowels and transmission mating surfaces

Measure bell housing bore to crank runout and face squareness

Measure flywheel runout and crankshaft end play; determine necessary action

6. Identify drive shaft components

Learning Objectives

Diagnose universal joint noise, vibration concerns; perform necessary action

Inspect drive shaft slip yoke/spline

Inspect / service or replace center support bearings

Measure drive shaft angle

Inspect driveline phasing

Inspect drive shaft run out/balance

7. Identify front drive axle components

Learning Objectives

Diagnose constant velocity joint noise and vibration concerns, determine necessary action

Identify front drive axle components

Service drive axle fixed joint

Service drive axle plunge joints

Inspect, service and replace shafts, yokes, boots, and CV joints

8. Diagnose universal joint noise and vibration concerns, determine necessary action

Learning Objectives

Service universal joints

Describe servicing universal joint with ball joint press

Perform universal joint service with vise and hammer

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

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