

**SOUTHEAST COMMUNITY COLLEGE**  
**ADVANCED TECHNOLOGIES & SKILLED TRADES DIVISION**  
**AUTOMOTIVE STUDENT SERVICE EDUCATIONAL TRAINING (ASSET)**  
**COURSE SYLLABUS**  
**September 10, 2025**

**I. CATALOG DESCRIPTION**

Course Number: ASST2758  
Course Title: Ford Drivelines  
Prerequisite(s): ASST1111 & ASST1116

Catalog Description: Operation, diagnosis, and repair of drive shafts, universal joints, axles, axle bearings, seals and differentials on late model Ford vehicles. Operation, diagnosis and service of Ford manual transmissions/transaxles and related drive train components. Operation, diagnosis, adjustment, and repair of the automatic transmissions used in rear-wheel and front-wheel drive Ford vehicles. Removal and installation procedures and safety.

Credit Hour: 6.0  
Class Hours: 38  
Lab Hours: 158  
Total Contact Hours: 196

**II. COURSE OBJECTIVES:** *Course will:*

- A.** Cover drivelines.
- B.** Cover front and rear axles and differentials.
- C.** Cover driveline angles.
- D.** Cover diagnosis and repair of driveline and axles.
- E.** Cover the theory and operation of clutches.
- F.** Cover the theory and operation of manual transmission and transaxles.
- G.** Cover diagnosis and repair of clutches and all late model Ford transmissions.
- H.** Cover diagnosis and repair of transfer cases.
- I.** Cover the theory and operation of Ford automatic transmissions and transaxles.
- J.** Cover the basic principles of operation of automatic transmissions and transaxles.
- K.** Cover the repair of Ford automatic transmissions and transaxles.
- L.** Cover diagnosing and testing Ford automatic transmissions and transaxles.
- M.** Cover Ford web-based training courses.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES**

**A. STUDENT LEARNING OUTCOMES:** *The student will be able to:*

1. Familiar with driveline service and safety.
2. Operation, service, and maintenance of drivelines and U-joints.
3. Learn the operation, service and maintenance of the differentials.
4. Learn service and replacement of rear axles and wheel bearings.
5. Recognize the operation, service and repair of clutches.
6. Recognize the operation, service and repair of manual transmissions/transaxles.
7. How to adjust and maintain manual transmissions/transaxles and clutches.
8. Recognize the operation, service and repair of overdrive units.
9. Remove, disassemble, assemble, install, and test the clutch.

10. Know the operation, service, & repair of transfer cases.
11. Remove, disassemble, assemble, install, and test the transmission/transaxle operation.
12. How to decipher and diagnose transmission noises.
13. Perform on car procedures with the clutch and manual transmission.
14. Repair and/or adjust shifter linkages.
15. Become familiar with Ford automatic transmission operation.
16. Learn the operation of the torque converter and Ford lockup system.
17. Learn the operation of planetary gear sets.
18. Learn operation of bands, servo, pistons, accumulators, and clutches.
19. Learn operation of the hydraulic system including the Ford valve body.
20. Learn why we need an oil cooler and how it works.
21. Learn service and maintenance of Ford automatic transmissions/transaxles.
22. Learn the operation of electronically controlled and shifted transmissions/transaxles.
23. Correctly diagnose and test the transmission electronics.
24. Use the correct procedures to verify proper operation of the electronically shifted transmission.
25. Learn the correct procedures on flushing the transmission oil cooler.
26. Learn the fundamentals and operation of torque converters.

**B. GENERAL EDUCATION LEARNING OUTCOMES:**

**GELO #3: Critical Thinking & Problem Solving**

**Outcome:**

1. Collect, identify, interpret and analyze data.

**IV. CONTENT/UNIT OF INSTRUCTION**

- A.** Rear axle construction and operation
- B.** Differential and limited slip differential operation
- C.** Rear axle diagnosis, disassembly and reassembly
- D.** Driveline components and service
- E.** How a clutch operates
- F.** How a manual transmission/transaxle functions
- G.** Diagnose a clutch and/or manual transmission problem or complaint
- H.** Perform a clutch service on a vehicle
- I.** Remove, service and/or install a manual transmission/transaxle
- J.** How a torque converter works
- K.** Planetary gears sets
- L.** Application devices
- M.** Holding devices
- N.** Power flow
- O.** Hydraulic circuits
- P.** Electronically shifted transmissions
- Q.** Auto transmission/transaxle diagnosis, disassembly and reassembly
- R.** Transmission removal and installation
- S.** Cooler maintenance and flushing
- T.** Transmission Control Module: diagnosis and reprogramming

**V. INSTRUCTIONAL MATERIALS**

The course information document lists the current text(s) required for this class. The list is also available in the campus bookstore. The course information document also lists the tools/equipment or other supplies required for this class.

## **VI. METHODS OF PRESENTATION / INSTRUCTION**

### **A. Methods of presentation typically include a combination of the following:**

1. Lecture
2. Small and large group discussion
3. Video presentation
4. Transparencies
5. Demonstrations
6. Project boards
7. Flip charts
8. Handouts
9. Observations
10. Assigned lab projects
11. Fieldtrips

## **VII. METHODS OF EVALUATION**

### **A. Methods of evaluation typically include a combination of the following:**

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Attendance/class conduct

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See course information document for specific details on how the course grades will be calculated.

## **VIII. SPECIFIC COURSE REQUIREMENTS**

### **A. Student must:**

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of 70% (2.0) or higher to progress in the program.

### **B. Attendance:**

1. Student must follow the Attendance Policy as stated in the college student handbook, automotive lab and classroom policies handbook or Course Information Document.

### **C. Shop safety rules will be followed.**

### **D. Any additional course requirements as stipulated by the Instructor**