

SYLLABUS

DATE OF LAST REVIEW:	4/23/2020
CIP CODE:	47.0613
SEMESTER:	Departmental Syllabus
COURSE TITLE:	Drive Trains
COURSE NUMBER:	DEVT 0135
CREDIT HOURS:	3
INSTRUCTOR:	Departmental Syllabus
OFFICE LOCATION:	Departmental Syllabus
OFFICE HOURS:	Departmental Syllabus
TELEPHONE:	Departmental Syllabus
EMAIL:	Departmental Syllabus <i>KCKCC-issued email accounts are the official means for electronically communicating with our students.</i>

PREREQUISITES:

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, <http://www.kckccbookstore.com> for the required text for your particular class.

COURSE DESCRIPTION: This course introduces the characteristics, principles and servicing of drive trains utilized in diesel manual or automatic transmission trucks and construction equipment that do not utilize hydrostatic drives. Procedures for disassembly, reassembly, component identification, wear analysis, and failure analysis of drive train components are provided.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

- I. General Drive Trains
 - A. Research vehicle service information.
 - B. Identify drive train components.
- II. Clutch

- A. Inspect and adjust clutch and clutch components.
- B. Inspect clutch master cylinder fluid level.
- C. Check clutch master cylinder, slave cylinder and components for leaks and damages.
- D. Inspect, adjust, repair, and/or replace hydraulic clutch slave and master cylinders and components.

III. Transmission

- A. Inspect transmission shifter and related components.
- B. Inspect transmission for leakage.
- C. Replace transmission cover plates and components.
- D. Check transmission fluid level and condition.
- E. Inspect transmission breather, oil filters, coolers, and related components.
- F. Identify causes of transmission noise and related problems.
- G. Inspect and adjust power take-off (PTO) assemblies, controls, and shafts.

IV. Driveshaft and Universal Joints

- A. Inspect, service and/or replace driveshafts and related components.
- B. Identify causes of driveshaft and universal joint noise and vibration problems.
- C. Inspect driveshaft center support bearings and mounts.
- D. Measure driveline angles.

V. Drive Axles

- A. Inspect and repair fluid leaks, housing assembly and related components.
- B. Check drive axle fluid level and condition.
- C. Inspect drive axle shafts.
- D. Remove and replace wheel assembly.
- E. Inspect, repair, or replace drive axle lubrication system pump and related components.
- F. Identify causes of drive axle(s) drive unit noise and overheating problems.
- G. Remove and replace differential carrier assembly.
- H. Identify causes of drive axle wheel bearing noise and check for damage.
- I. Inspect and/or replace components of differential case assembly.
- J. Inspect and replace components of locking differential case assembly.
- K. Inspect differential carrier housing, caps, and bores.
- L. Inspect and replace ring and drive pinion gears and related components.
- M. Measure ring gear runout.
- N. Measure and adjust drive pinion bearing preload.
- O. Measure and adjust drive pinion depth.
- P. Measure and adjust side bearing preload and ring gear backlash.
- Q. Check and interpret ring gear and pinion tooth contact pattern.
- R. Inspect, adjust, or replace ring gear thrust block/screw.

EXPECTED LEARNER OUTCOMES:

- A. The student will be able to identify drive trains and their components.
- B. The student will be able to repair drive trains and related components.
- C. The student will be able to identify clutches and components.
- D. The student will be able to repair clutches and components.
- E. The student will be able to inspect transmissions.
- F. The student will be able to identify driveshafts and related components.

G. The student will be able to inspect drive axles.

COURSE COMPETENCIES:

Upon successful completion of the course:

The student will be able to identify drive trains and their components.

1. The student will be able to research vehicle information.
2. The student will be able to demonstrate knowledge of drive trains and related components.

The student will be able to repair drive trains and related components.

3. The student will be able to diagnose drive train issues and related components.

The student will be able to identify clutches and components.

4. The student will be able to adjust clutches and related components.
5. The student will be able to adjust master cylinders and components.

The student will be able to repair clutches and components.

6. The student will be able to diagnose issues with clutches and related components.

The student will be able to inspect transmissions.

7. The student will be able to diagnose transmission issues.
8. The student will be able to adjust power take off, assemblies and shafts.

The student will be able to identify driveshafts and related components.

9. The student will be able to diagnose driveshaft and joint issues.

The student will be able to inspect drive axles.

10. The student will be able to demonstrate knowledge of drive axles and related components.
11. The student will be able to diagnose issues with drive axles and related components.
12. The student will be able to replace drive axles.

ASSESSMENT OF LEARNER OUTCOMES: Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

SPECIAL NOTES:

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student's progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed

to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college's policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center, in Rm. 3354 or call at: 288-7670.