SYLLABUS

DATE OF LAST REVIEW: 4/23/2020

CIP CODE: 47.0613

SEMESTER: Departmental Syllabus

COURSE TITLE: Brakes

COURSE NUMBER: DEVT 0140

CREDIT HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus
KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: None

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

COURSE DESCRIPTION: Brakes covers theory and operations of hydraulic and air brake systems, troubleshooting, disassembly, inspection, and adjustments of hydraulic and air brake systems, including ABS. (KBOR aligned).

Common light, medium and heavy truck hydraulic and air brake systems and components are highlighted. Operation, maintenance, inspection, diagnosis, wear pattern interpretation, failure analysis, reconditioning, disassembly, re-assembly are covered. Specifies requirements and testing procedures of Federal Standard FMVSS 105 (hydraulic brakes) and FMVSS 121 (air brakes) are included.

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. Brakes
    A. Research vehicle service information.
    B. Identify brake system components and configurations.
    C. Identify brake performance problems caused by the mechanical/foundation brake system.
II. Hydraulic Brakes: Hydraulic System
    A. Check master cylinder fluid level and condition.
    B. Inspect, test, repair and/or replace hydraulic brake system and components for leaks and damages.
    C. Check hydraulic brake system operation.
    D. Test master cylinder for internal/external leaks and damages.
    E. Test metering (hold-off), load sensing/proportioning, and combination valves.
    F. Test brake pressure differential valve, warning light circuit switch and related components.
    G. Bleed and/or flush hydraulic brake system.
III. Hydraulic Brakes: Mechanical/Foundation Brake System
    A. Clean and inspect rotor and mounting surface.
    B. Inspect and clean disc brake caliper assemblies and related components.
    C. Remove, clean, and inspect brake drums and related components.
    D. Check and replace disc brake caliper assembly mountings and slides.
IV. Hydraulic Brakes: Parking Brake System
    A. Check, inspect, adjust repair, and/or replace brake application.
V. Power Assist Systems
    A. Check brake assist/booster system hoses and control valves.
    B. Check operation of emergency brake assist system.
    C. Identify concerns related to the power assist system.
    D. Inspect, test, repair and/or replace hydraulic brake assist/booster systems and related components.
VI. Wheel Bearings
    A. Clean, inspect, lubricate, and/or replace wheel bearings and races/cups and related components.
    B. Identify, inspect, and/or replace unitized/present hub bearing assemblies.

EXPECTED LEARNER OUTCOMES:

A. The student will be able to demonstrate knowledge of brake components and configurations.
B. The student will be able to describe hydraulic brakes and systems.
C. The student will be able to repair hydraulic brake systems.
D. The student will be able to describe mechanical/foundation brake systems.
E. The student will be able to describe parking brake systems.
F. The student will be able to repair park brake systems.
G. The student will be able to describe power assist systems.
H. The student will be able to demonstrate knowledge of wheel bearings.

COURSE COMPETENCIES:
Upon successful completion of this course:

The student will be able to demonstrate knowledge of brake components and configurations.

1. The student will be able to describe brake system components and configurations.
2. The student will be able to identify air brakes
3. The student will be able to inspect air brakes.
4. The student will be able to diagnose air brakes.
5. The student will be able to repair air brakes.

The student will be able to describe hydraulic brakes and systems.

6. The student will be able to identify hydraulic brakes.
7. The student will be able to inspect hydraulic brakes.
8. The student will be able to diagnose hydraulic brakes.

The student will be able to repair hydraulic brake systems.

9. The student will be able to repair hydraulic brake systems.

The student will be able to describe mechanical/foundation brake systems.

10. The student will be able to demonstrate knowledge of mechanical/foundation brake systems.

The student will be able to describe parking brake systems.

11. The student will be able to demonstrate knowledge of parking brake systems.

The student will be able to repair park brake systems.

12. The student will be able to diagnose issues with park brake systems.

The student will be able to describe power assist systems.

13. The student will be able to demonstrate knowledge of power assist systems.

The student will be able to demonstrate knowledge of wheel bearings.

14. The student will be able to inspect wheel bearings.

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.

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

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