

SYLLABUS

COURSE # AND TITLE DIME 230 Advanced Brakes and Drive Trains # OF CREDITS 5

CATALOG DESCRIPTION

Study of hydraulic operated/assisted drive trains, retarders, variable, fixed and lockup torque convertors, shuttle shift/powershift electronic control transmissions, differentials, and final drives. Foundation brakes components for off highway/construction/mining equipment will be covered as well. Diagnosis and repairs will be performed on various manufacturer's equipment and components. Safety will be strictly enforced.

Semester Offered: Spring odd numbered years.

Prerequisites: Brakes and Drive Trains

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will...

<i>Learn</i>	<i>Students will actively and independently acquire, apply and adapt skills and knowledge to develop expertise and a broader understanding of the world as lifelong learners.</i>
<i>Think</i>	<i>Students will think analytically and creatively to explore ideas, make connections, draw conclusions, and solve problems.</i>
<i>Communicate</i>	<i>Students will exchange ideas and information with clarity and originality in multiple contexts.</i>
<i>Integrate</i>	<i>Students will demonstrate proficiency in the use of technologies in the broadest sense related to their field of study.</i>
<i>Act</i>	<i>Students will act purposefully, reflectively, and respectfully in diverse and complex environments.</i>

GENERAL LEARNING OBJECTIVES

1. To provide the student with the techniques and procedures to correctly inspect, diagnose, adjust, and repair construction equipment drive train and foundation.

SPECIFIC LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to...

1. Identify components of torque convertor.
2. Trace fluid flow through a torque convertor.
3. Describe the operation of a torque convertor in various stages of operation.
4. Diagnose; adjust converter in and out pressure.
5. Identify components of an engine retarder.
6. Trace fluid flow through an engine retarder.
7. Inspect, diagnose, and repair/replace a torque convertor.
8. Describe the operation of an overrunning clutch.
9. Describe the function of the three parts of a planetary gear set.
10. Describe the function of a multiple disc clutch.
11. Trace the flow of power through a powershift transmission.
12. Diagnose, adjust transmission main pressure.
13. Diagnose, adjust directional clutch application pressure.
14. Diagnose, adjust speed clutch application pressure.
15. Safely perform a convertor stall test.
16. Check and adjust hot and cool oil levels.

17. Inspect, remove, and repair/replace a driveline universal joint.
18. Check/correct driveline angles per manufacturer's specifications.
19. Lubricate a driveline to include the slip joint.
20. Check/correct driveline Phasing(timing
21. Check input/output yokes for damage; service as needed.
22. Check/correct differential oil level.
23. Inspect, diagnose, and repair differential pinion oil seal leaks.
24. Inspect, diagnose, and repair pinion to bevel gear backlash.
25. Check, adjust ring gear tooth pattern per manufacturer's specifications.
26. Inspect, diagnose, and replace axle shafts per manufacturer's specifications.
27. Inspect, diagnose, and repair planetary final drives.
28. Inspect, diagnose, and repair wet wheel brakes.
29. Inspect, diagnose, and repair dry wheel brakes.

Syllabus developed by _____ Date: _____

Syllabus reviewed by _____ Date: _____

A current syllabus must be on file in the dean's office for every course being taught during a given semester.