

# SYLLABUS

COURSE # AND TITLE DIME 240 Advanced Steering and Suspension # OF CREDITS 5

## CATALOG DESCRIPTION

This course will be based on the study of steering systems and suspension systems for off highway equipment. Wheel alignment diagnosis repair; wheel bearing adjustment, inspection, and repair; tire rim inspection and replacement; under carriage inspection and repair for crawler tractors will all be taught. Instruction will also include: articulation steering, suspension strut diagnosis and repair, cushion hitch system adjustment and repair, loader ride control system testing. Diagnosis and repair will be performed on various manufacturer's equipment and components. Safety will be strictly enforced.

Semester Offered:

Prerequisites:

### *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 identify, diagnose, and repair the various types of steering systems utilized on construction equipment.

## SPECIFIC LEARNING OUTCOMES

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

1. Identify equipment as to model, serial number, and manufacturer.
2. Check and adjust tire pressure per manufacturer's specification.
3. Inspect tires for abnormal wear patterns, damage, and correct direction of rotation.
4. Measure tire tread depth using the correct tooling.
5. Inspect, safely replace missing or damaged tire rim components.
6. Safely remove wheel assemblies from machine.
7. Check, adjust toe in/out on machine.
8. Inspect tie rods, drag link, steering cylinder ends for wear/damage; repair or replace as needed.
9. Check, adjust steering wheel stop to stop travel; adjust free play in steering wheel.
10. Check and adjust steering fluid level; diagnose fluid loss cause.
11. Remove, reseal, and reinstall defective steering cylinders.
12. Test and adjust steering pressures.
13. Check, adjust, repair, and replace wheel bearings per manufacturer's specification.

14. Inspect front axles, u-bolts, and nuts; determine needed repairs.
15. Inspect frame for cracks, determine needed repairs.
16. Check steering accumulator pre-charge pressure, adjust as needed.
17. Check oscillation joint for wear, repair as needed repairs.
18. Check articulation joint for wear, repair as needed.
19. Check and adjust suspension strut oil level, adjust as needed.
20. Check suspension strut nitrogen charge, adjust per manufacturer's specification.

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.**