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SAN DIEGO COMMUNITY COLLEGE DISTRICT
MIRAMAR COLLEGE
ASSOCIATE DEGREE COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER: Diesel Technology 180

COURSE TITLE: Steering, Suspension, and Driveline Systems **Units:** 3
Grade Only

CATALOG COURSE DESCRIPTION:

This Heavy Duty Transportation (HDT) course covers the principles and practices involved in operating and servicing HDT steering systems, suspension systems, and drivelines. Students also learn common industry methods to perform vibration analyses of steering, suspension, and driveline systems.

REQUISITES:

Corequisite: Completion of or concurrent enrollment in:
DIES 100 with a grade of "C" or better, or equivalent

FIELD TRIP REQUIREMENTS: May be required

TRANSFER APPLICABILITY: Associate Degree Credit & transfer to CSU and/or private colleges and universities

TOTAL LECTURE HOURS: 32 - 36

TOTAL LAB HOURS: 48 - 54

STUDENT LEARNING OBJECTIVES:
Upon successful completion of the course the student will be able to:

1. Explain the purpose of driveline, suspension, and steering systems.
2. Examine and describe how driveline, suspension, and steering systems operate.
3. Demonstrate common industry methods to perform vibration analyses of driveline, suspension, and steering systems.
4. Assess and perform required maintenance service procedures for driveline, suspension, and steering systems.
5. Use accepted industry methods to assess the serviceability of driveline, suspension, and steering systems.
6. Prepare written records of repairs and lab activities including progress and serviceability reports.

SECTION II

1. COURSE OUTLINE AND SCOPE:

A. **Outline Of Topics:**
The following topics are included in the framework of the course but are not intended as limits on content. The order of presentation and relative emphasis will vary with each instructor.

I. Organization and procedures
    A. Course content and instructional procedures
    B. Safe working procedures
    C. Project organization
    D. Handling components
    E. Service procedures
    F. Special tools.
II. Drivelines
    A. Principles of operation
    B. Service procedures
    C. Vibration analysis and troubleshooting.
III. Suspension systems
    A. Principles and design
    B. Operation and service
    C. Troubleshooting.
IV. Steering systems
    A. Manual steering
        1. Operation
        2. Service
        3. Troubleshooting.
    B. Power steering
        1. Operation
        2. Service
        3. Troubleshooting.

B. **Appropriate Assignments that Demonstrate Critical Thinking:**
Critical thinking assignments are required and may include, but are not limited to, the following:

I. 1. Evaluating a unit for driveline angularity
II. 2. Assessing the serviceability of given driveline, suspension, and steering systems
III. 3. Calculating and solving mathematical problems
IV. 4. Differentiating among common industry methods to perform vibration analyses of driveline, suspension, and steering systems.

C. **Appropriate Outside Assignments:**
Outside assignments may include, but are not limited to, the following:

I. 1. Conducting research and preparing reports
II. 2. Completing all reading and writing assignments including a shop notebook
III. 3. Completing field assignments/projects.

D. **Writing Assignments:**
Writing assignments are required and may include, but are not limited to, the following:

I. 1. Completing assigned papers or reports including a shop notebook
II. 2. Responding to short answer/essay questions about the operation and servicing of steering, suspension, and driveline systems
III. 3. Preparing written records of repairs and lab activities including a vibration analysis of steering, suspension, and driveline systems.

E. **Reading Assignments:**
Reading assignments are required and may include but, are not limited to, the following:

I. 1. Course texts and repair manuals
II. 2. Professional journals such as Heavy Duty Trucking, Service Tech, Fleet Owner, Maintenance Manager, Fleet Equipment, and Transportation Equipment News
III. 3. Laboratory guides associated with diesel technology.

2. METHODS OF EVALUATION:

A student's grade will be based on multiple measures of performance unless the course requires no grade. Multiple measures may include, but are not limited to, the following:

I. Performing manipulative skills as needed to satisfactorily complete laboratory assignments Applying theory to laboratory assignments Performing on written, oral, and/or practical examinations Performing on out-of-class assignments including writing assignments Contributing to class discussions.

3. METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to, the following:

* Lecture Discussion
* Lecture
* Computer Assisted Instruction
* Laboratory
* Discussion Seminar
* Lecture-Lab Combination
* Learning Modules
* Audio-Visual
* Collaborative Learning
* Other (Specify)
* 1. Demonstration
* 2. Field trips or field assignments
* 3. Laboratory assignments utilizing specifically planned instructional activities or "live" work.

4. REQUIRED TEXTS AND SUPPLIES:
Textbooks may include, but are not limited to:

TEXTBOOKS:
1. Brady, Robert N.. Heavy Duty Trucks and Power Train Systems and Services, 1st ed. Prentice-Hall, 1997, ISBN: 0131814702
2. Lewis, Jim.. DIES-M Daily Reports, 2nd ed. Miramar Reprographics, 1976,

MANUALS:

PERIODICALS:

SOFTWARE:

SUPPLIES:
1. Shop notebook (8 1/2" x 11" spiral bound)
2. Safety glasses
3. Calculator
4. Scantron answer sheets
5. Appropriate clothing and footwear for shop work

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CO-CONTRIBUTOR(S)
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