

**DET 185 Course Outline as of Fall 2018****CATALOG INFORMATION**

Dept and Nbr: DET 185 Title: HEAVY DUTY CHASSIS

Full Title: Heavy Duty Chassis and Undercarriage Systems

Last Reviewed: 1/22/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.25	17.5	Lecture Scheduled	39.38
Minimum	3.00	Lab Scheduled	2.25	8	Lab Scheduled	39.38
		Contact DHR	0		Contact DHR	0
		Contact Total	4.50		Contact Total	78.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 78.75

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: DET 85

**Catalog Description:**

The study of heavy-duty chassis and undercarriage systems including steering, braking, and suspension systems utilized on trucks, agricultural equipment and construction equipment.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100 and Course Completion of DET 179

**Limits on Enrollment:****Schedule of Classes Information:**

Description: The study of heavy-duty chassis and undercarriage systems including steering, braking, and suspension systems utilized on trucks, agricultural equipment and construction equipment. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100 and Course Completion of DET 179

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Effective:	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

**Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Inspect, evaluate and repair brakes systems
2. Inspect, evaluate and repair steering systems
3. Inspect, evaluate and repair suspension systems

**Objectives:**

At the conclusion of this course, the student should be able to:

1. Evaluate and repair steering and suspension systems for medium/heavy duty equipment.
2. Measure and adjust wheel alignment angles.
3. Inspect, assess and repair hydraulic brake systems.
4. Inspect, assess and repair air brake systems.

**Topics and Scope:**

I. Steering Systems

- A. Steering system components
- B. Steering geometry and function
- C. Mechanical and hydraulic steering systems
- D. Testing steering systems

II. Suspension Systems

- A. On highway transportation equipment
- B. Public transportation equipment
- C. Mobile heavy equipment
- D. System repair and maintenance
- E. Component repair and maintenance

III. Wheels, Tires, Tracks and Alignment Factors

- A. Wheel hubs and bearings
- B. Tire applications and types
- C. Steel and fiber tracks and components
- D. Truck and bus alignment basics

- E. Equipment undercarriage alignment and wear factors
- IV. Air Brake Systems
  - A. Air brake system operation dynamics
  - B. Air brake components, repair and maintenance
  - C. Foundation brake components and adjustment
  - D. Anti-lock brake systems
- V. Hydraulic Brake Systems
  - A. Brake system operation
  - B. Brake system components, repair and maintenance
  - C. Foundation brake components, repair and maintenance
  - D. Anti-lock brake systems

All topics are covered in both the lecture and lab parts of the course.

**Assignment:**

Lecture-Related Assignments:

1. Read approximately 25 to 50 pages a week
2. Ten to fifteen tests to include final

Lab-Related Assignments:

1. Perform alignment checks on vehicles and equipment
2. Perform maintenance and repair procedures on chassis-related equipment
3. Perform brake inspections and adjustments on heavy vehicles
4. Complete NATEF (National Automotive Technicians Education Foundation) recommended task sheets
5. Daily work logs (work assigned, work completed)

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Daily work logs

Writing  
0 - 25%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Task Sheets

Problem solving  
15 - 30%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Lab repair work including alignments, inspections, and repairs

Skill Demonstrations  
15 - 25%

**Exams:** All forms of formal testing, other than skill performance exams.

Tests including final

Exams  
40 - 50%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Fundamentals of Mobile Heavy Equipment CDX. Wright, Gus and Duffy, Owen and Heard, Scott. Jones and Bartlett. 2019

Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems. Duffy, Owen and Wright, Gus. Jones and Bartlett. 2016

Instructor prepared materials