### **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	<b>Course Hours Total</b>	
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:

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

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

## 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 chasis-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

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

Task Sheets

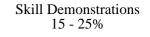
**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Lab repair work including alignments, inspections, and repairs

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

	Writing 0 - 25%	
-		

Problem solving 15 - 30%



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