ATL 240 Course Outline as of Fall 2025

CATALOG INFORMATION

Dept and Nbr: ATL 240 Title: MHT BRAKE AND CHASSIS
Full Title: Medium Heavy Truck Brakes and Suspension
Last Reviewed: 12/4/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.50	17.5	Lecture Scheduled	43.75
Minimum	3.00	Lab Scheduled	1.50	8	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 87.50 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:	

Catalog Description:
Students will learn about heavy-duty chassis and undercarriage systems including steering, braking, and suspension systems utilized on trucks, agricultural equipment, and construction equipment. Course prepares students to pass the Automotive Service Excellence (ASE) T4 Brakes certification test.

Prerequisites/Corequisites:
Course Completion of ATL 101 and Course Completion or Concurrent Enrollment in ATL 161

Recommended Preparation:
Eligibility for ENGL C1000 or equivalent and MATH 25 or equivalent

Limits on Enrollment:

Schedule of Classes Information:
Description: Students will learn about heavy-duty chassis and undercarriage systems including steering, braking, and suspension systems utilized on trucks, agricultural equipment, and construction equipment. Course prepares students to pass the Automotive Service Excellence (ASE) T4 Brakes certification test. (Grade Only)
Prerequisites/Corequisites: Course Completion of ATL 101 and Course Completion or

Concurrent Enrollment in ATL 161
Recommended: Eligibility for ENGL C1000 or equivalent and MATH 25 or equivalent
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**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. Evaluate and diagnose medium heavy-duty brake components/system malfunctions
2. Evaluate and diagnose medium heavy-duty steering systems
3. Evaluate and diagnose medium heavy-duty suspension systems

Objectives:
At the conclusion of this course, the student should be able to:
1. Evaluate and diagnose steering and suspension systems for medium/heavy duty equipment.
2. Measure and adjust wheel alignment angles.
3. Evaluate and diagnose hydraulic brake systems.
4. Evaluate and diagnose air brake systems.
5. Discuss and apply personal, shop, and environmental safety procedures.

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
VI. Safety
   A. Personal
   B. Shop
   C. Environmental

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

Assignment:

Lecture-Related Assignments:
1. Weekly reading (25-75 pages)
2. Weekly chapter tests
3. Final exams

Lab-Related Assignments:
1. Brakes and suspension related lab projects
2. ASE Education Foundation recommended task sheets
3. Daily work logs (work assigned, work completed) if assigned by instructor

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 - 20%

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

ASE recommended task sheets	Problem solving 15 - 30%

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

Brakes and suspension related lab projects	Skill Demonstrations 15 - 30%

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

Chapter tests; final exams	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. 2nd ed. Wright, Gus and Duffy, Owen and Heard, Scott. Jones and Bartlett. 2023.
Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems. 2nd ed. Duffy, Owen and Wright, Gus. Jones and Bartlett. 2020.
Instructor prepared materials