

**ATL 100 Course Outline as of Fall 2024****CATALOG INFORMATION**

Dept and Nbr: ATL 100 Title: TRANSPORTATION TECH

Full Title: Introduction to Transportation Technology

Last Reviewed: 12/4/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.50	17.5	Lecture Scheduled	26.25
Minimum	2.00	Lab Scheduled	1.50	6	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 52.50

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

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

Also Listed As:

Formerly:

**Catalog Description:**

Students will explore the theory of operation, routine maintenance, technical vocabulary, components, systems, and basic safety procedures relating to Advanced Transportation and the Advanced Transportation repair technician. Topics include careers, employability skills, workplace practices, safety, personal protection, the basic maintenance and repair of transportation equipment and its systems for the entry-level transportation maintenance technician. Students will be introduced to internal combustion engines: gasoline, diesel, and hydrogen; electric power and alternative fuels; automotive technology; medium and heavy duty trucks; public transportation; agricultural and construction equipment.

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

Eligibility for ENGL 1A or equivalent

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

Description: Students will explore the theory of operation, routine maintenance, technical

vocabulary, components, systems, and basic safety procedures relating to Advanced Transportation and the Advanced Transportation repair technician. Topics include careers, employability skills, workplace practices, safety, personal protection, the basic maintenance and repair of transportation equipment and its systems for the entry-level transportation maintenance technician. Students will be introduced to internal combustion engines: gasoline, diesel, and hydrogen; electric power and alternative fuels; automotive technology; medium and heavy duty trucks; public transportation; agricultural and construction equipment. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 1A or equivalent

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:
<b>CSU Transfer:</b>		Effective:	Inactive:
<b>UC Transfer:</b>		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. Demonstrate the correct use of basic tools and safety procedures utilized by a mobile equipment repair technician
2. Demonstrate proficiency of basic maintenance procedures and repair operations of mobile equipment and its systems

**Objectives:**

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

1. Demonstrate safe working conditions and practices
2. Use common automotive shop equipment safely
3. Identify and recognize common automotive tools and equipment
4. Identify fasteners
5. Discuss automotive engine fundamentals
6. Perform vehicle engine oil service
7. Assess and use service information
8. Demonstrate proper use of metric and standard micrometers
9. Describe basic electricity
10. Demonstrate proper use of a volt/ohmmeter
11. Select the appropriate automotive fluid for the selected application

12. Use appropriate methods for hazardous waste handling and disposal
13. Identify potential areas of employment in the automotive industry
14. Read and fill out work orders to meet industry and Bureau of Automotive Repair (BAR) standards
15. Perform basic vehicle maintenance

## **Topics and Scope:**

### Lecture-Related Topics and Scope:

#### I. Introduction to Advanced Transportation Technology

- A. Mobile equipment shop safety
- B. Tool identification and usage
- C. Mobile equipment and usage
  1. Car/truck lift, front wheel drive, and rear wheel drive
  2. Oil change and drain equipment
  3. Floor jacks and jack stands
  4. Parts washers and bead blaster
  5. Tire changer and wheel balancer
  6. Vises, hydraulic press, drill press, and grinders/wire wheels
- D. Mobile equipment information systems
- E. Fastener use and identification
  1. Metric
  2. Standard-Society of Automotive Engineers (SAE)
  3. International Standards Organization/Deutsches Institut für Normung (ISO/DIN)

#### II. Introduction to Mobile Vehicle Systems (Automotive Service Excellence (ASE) Certification areas noted below)

- A. Engines (A1, T1, T2)
- B. Automatic Transmissions (A2, T3)
- C. Manual Transmissions (A3, T3)
- D. Steering and Suspension (A4, T5)
- E. Brakes (A5, T4)
- F. Electrical (A6, T6)
- G. Heating and Air Conditioning (A7, T7)
- H. Engine Performance (A8)

#### III. Mobile Equipment Fluid Applications

- A. Engine oils
- B. Transmission fluids
- C. Gear oils
- D. Brake fluids
- E. Power steering fluids
- F. Coolants

#### IV. Fluid Leaks

#### V. Chemical Applications, Adhesives, Cleaners, and Sealers

#### VI. Assessment and Use of Service Information

#### VII. Precision Measurement

#### VIII. Areas of Employment

- A. Service, parts, sales, wholesale, and manufacturing
- B. Self-employment

#### IX. Hazardous Waste Management/Right to Know

#### X. Vehicle Maintenance

#### XI. Hybrid, Electric, and Alternative Fuel Safety

#### XII. Hybrid, Electric, and Alternative Fuel Applicable Systems Awareness

Lab-Related Topics and Scope:

- I. Demonstrate Proper Shop Safety and Working Practices
  - A. Tools
  - B. Equipment
  - C. Hazardous waste handling
- II. Identify Fasteners Used in Mobile Equipment Applications
- III. Access Vehicle Service Information
- IV. Identify the Different Vehicle Systems and Their Components
- V. Perform Vehicle Maintenance, Safety Inspections, and Fluid Services
- VI. Perform Basic Electrical Measurements Utilizing the Appropriate Test Equipment
- VII. Perform Precision Measurements Utilizing the Appropriate Tools/Equipment

**Assignment:**

Lecture-Related Assignments:

- 1. Weekly reading (10-25 pages)
- 2. Worksheets from reading assignments
- 3. Notebook with handouts and class notes if assigned by instructor
- 4. Tests and final exam

Lab-Related Assignments:

- 1. Lab assignments and worksheets

**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.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

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

Worksheets from reading assignments

Problem solving  
5 - 10%

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

Lab assignments and worksheets

Skill Demonstrations  
10 - 20%

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

Tests and final exam

Exams  
70 - 80%

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

Notebook

Other Category  
0 - 5%

**Representative Textbooks and Materials:**

Fundamentals of Automotive Maintenance and Light Repair. 2nd ed. VanGelder, Kirk. Jones & Bartlett Learning. 2020.

Instructor prepared materials