LOS MEDANOS COLLEGE

ARTICULATION AGREEMENT

DATE DRAFTED: October 4, 2022
VALID ACADEMIC YEAR(S): FA22-SP24

LMC COURSE: AUTO-110 "Automotive Essential Car Care"

HIGH SCHOOL COURSE: Introduction to Automotive Technology

School: Liberty High School
Address: 850 2nd St. Brentwood, CA 94513

A. **COLLEGE COURSE DESCRIPTION:** This course is designed to teach the operation and maintenance of modern automobiles. There is an emphasis on the theory of the basic operating systems, including engine, electrical, chassis, and driveline systems. This course is designed for the student seeking a career as an automotive technician as well as the home mechanic or who wants to learn about his or her automobile.
B. **UNITS: 5.5**
C. **PRE-REQUISITES: NA**
D. **HIGH SCHOOL CLASS DESCRIPTION:** Students will explore the field of transportation and energy technology. They will develop a knowledge and understanding of the principles upon which an automobile operates. They will understand how specific tools and equipment are used to perform maintenance and repair operations.

E. **REQUIRED CONTENT FOR ARTICULATION:**

Standard 1: SAFETY

Students will understand safety in the transportation industry that includes mechanical and toxic hazards. They will operate and use equipment in the shop safely and efficiently, develop an awareness of environmental hazards, and discuss ways of dealing with health and safety concerns.

Standard 2: TOOLS AND EQUIPMENT

Students will understand how specific tools and equipment are used to perform maintenance and repair operations. They will select and use the correct tool or equipment required to perform diagnostic and repair procedures in the shop.

Standard 3: APPLICATION OF PRINCIPLES

Students will understand physical, chemical, environmental, mechanical, and electrical principles used in transportation. They will use basic mechanical principles to analyze and explain the function possibilities and design of vehicle and energy systems.

Standard 4: POWER AND ENERGY

Students will understand how power is developed from mechanical and alternative energy sources. They will explain energy conversion from electrical to mechanical as relates to transportation vehicles.

Standard 5: DIAGNOSIS AND RESOLUTIONS

Students will understand how maintenance procedures, service manuals, research procedures, troubleshooting and resolution are integrated to diagnose and repair transportation and energy systems. They will use various types of information retrieval systems in a systematic approach to determine specifications, repair and service procedures. They perform and document maintenance procedures in accordance with the recommendations of the manufacturer specifications.

Samples of specific activities or tasks that give the student the opportunity to demonstrate that they can meet the standards:

- Engine Systems (test and inspect)
    A. Charging system, basic automotive circuits, battery, alternator, voltage regulator, and fan belt operations
    B. Ignition system
    C. Compression system
    D. Fuel system
    E. Starting system
- Cooling System (test and inspect)
    A. Radiator, hoses, for leaks
    B. Radiator cap for proper sealing
    C. Coolant condition and level
    D. Water pump for leaks and wear
    E. Fan belts adjustment and condition
- Suspension system (test and inspect)
    A. Ball joints for excessive wear
    B. Shock absorbers for leaks and control
    C. Upper and lower control arms and bushings
    D. Stabilizer bushings
- Steering System (test and inspect)
    A. Tie rod ends for wear
    B. Idler arm for wear
    C. Steering box for wear and adjustment
    D. Power steering pump
- Wheel Alignment (test for proper)
    A. Caster adjustment
    B. Camber adjustment
    C. Toe set
- Brake System (test and inspect)
    A. Disc pads and rotors for wear
    B. Shoes and drums for wear
    C. Master cylinder and wheel cylinders
    D. All break hoses and lines
    E. Wheel bearings
    F. Adjust brakes
- Tires (test and inspect)
    A. Tread depth
    B. Uneven wears
    C. Proper inflation
    D. Balance
- Lights (test and inspect)
    A. Headlights for proper operation and adjustment
    B. Taillights, brake lights, turn signals, parking lights, blinkers
- Gasoline Engines (test and inspect)
    A. Power loss or poor acceleration
    B. Cranks and fails to start
    C. Back-firing
    D. Miss-fires
    E. Idles rough
    F. Oil consumption

G. Oil pressure
H. Service in general

Samples of specific activities or task that give the students the opportunity to demonstrate that they can meet the standards:

- Score 100% grade on Safety test
- Demonstrate knowledge of classroom standard
- Demonstrate knowledge disaster-emergency drills
- Demonstrate knowledge of business practices
- Demonstrate ability to use service and labor manuals
- Demonstrate ability to safely operate hydraulic lifts
- Demonstrate ability to safely operate hydraulic jacks
- Demonstrate ability to safely operate hand floor jacks
- Demonstrate ability to safely operate hand air tools
- Demonstrate ability to safely operate hand wrenches
- Demonstrate ability to prepare a technician's work order
- Demonstrate ability to prepare a list of replacement parts
- Demonstrate ability to conduct general automobile inspections
- Demonstrate ability to perform oil, filter change, and lubrications

F. REQUIRED COMPETENCIES (PERFORMANCE OBJECTIVES) FOR ARTICULATION

Students will explore the field of **Transportation and Energy Technology**. They will develop a knowledge and understanding of the principles upon which an automobile operates. They will understand how specific tools and equipment are used to perform maintenance and repair operations.

***LHS Class Goals: Upon completion of this course the student will*:**

- Demonstrate knowledge of safety and health practices in the shop.
- Demonstrate ability to use and apply technology to access, organize, and evaluate information needed to diagnose, service and repair vehicles.
- Demonstrate the ability to effectively manage and understand the use of automotive procedures, tools, and equipment.
- Demonstrate the ability to work independently and effectively with others.
- Demonstrate job seeking skills that serves as a foundation for employment opportunities

LMC Course-Level Student Learning Outcomes (CSLOs):

1. **Safely perform standard auto shop practices.**
2. **Properly write out shop work order forms**
3. **To correctly identify and demonstrate proper use of the hand tools, equipment and fasteners necessary to perform automotive repairs.**
4. **Perform light service work on multiple automobile systems using proper procedures by the automotive manufactures.**

G. METHODS FOR END OF COURSE ASSESSMENT:

Assessment methods

- **Tardy:** Refer to school policy. My class is a "Job Readiness" class. If you can't be on time here at school, how are you going to be on time the rest of your life?
- **Assignments:** 20% of your grade is based on completing projects both in the classroom and the shop.
- **Participation**: 50% of your grade is based on participation both in the classroom and the shop. You will receive a possible 10 points per week and marked down as we have issues.
- **Tests:** 30% of your grade is based on tests that come at the end of every section we go over. Make up work is only done for excused absences.
- **School ID badge:** When you come to class you must have your ID badge on. When class starts and we are going in the shop you must take it OFF. (For safety) It is then YOUR responsibility to put it back on at the end of class or before leaving the room.

Total	100%
Percentage	Grade
100-90	A
89-80	B
79-70	C
69-50	D
49 Below	F

H. PROCEDURES AND/OR CRITERIA FOR COURSE ARTICULATION:

(all of the following must be met)

1. Students **must apply** to Los Medanos College and register in **CATEMA** in order to receive credit recommendations by their high school teacher.
2. Students **must be recommended** for credit by their high school teacher in **CATEMA.** *Teachers recommend credit at their discretion.*
3. Students **must complete** the **Introduction to Automotive Technology** at **Liberty High School** with an overall grade of "B" or better.
   High school teachers will enter this grade in CATEMA.
4. Students **must earn** a "B" or better on the agreed upon college/high school final exam procedure.
   High school/Adult Ed. teachers will enter this exam grade in CATEMA.
5. Articulated college credit may only be recommended by the high school teacher and received by the student **within the academic year** in which it was earned.
6. Upon completion of the above, the student will receive on his/her LMC and CCCCD (California Community College District) transcript the units of credit for LMC's **AUTO-110 "Automotive Essential Car Care** "course.
7. College transcripts will reflect the **FINAL EXAM GRADE** earned and will be notated as *Credit by Exam.

I. TEXTBOOKS OR OTHER SUPPORTING MATERIALS

Modern Automotive Technology 8th edition. Alldata

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COLLEGE SIGNATURES

Natalie Hannum
Natalie Hannum (Oct 18, 2022 12:43 PDT)

Natalie Hannum Date
LMC Vice President of Instruction

Dennis Franco Date
LMC Dean of Instruction (Interim), Vocational Technical

Jason Dearman
Jason Dearman (Oct 18, 2022 12:16 PDT)

Jason Dearman Date
LMC Automotive Department Chair

HIGH SCHOOL/ROP/DISTRICT SIGNATURES

Efa Huckaby Date
Principal, Liberty High School

Erik Faulkner
Erik Faulkner (Oct 19, 2022 12:25 PDT)

Erik Faulkner Date
LUHSD Assistant Superintendent, Educational Services

Jonathan Dorr
Jonathan Dorr (Oct 19, 2022 08:12 PDT)

Jon Dorr Date
Faculty, Liberty High School

AUTO-110_LHS_ARTIC_FA22-SP24

Final Audit Report 2022-10-19

Created:	2022-10-04
By:	Colleen Grim (cgrim@losmedanos.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAXmPD8qWFV68M2uQk4ujd_J53t8RAd15S

"AUTO-110_LHS_ARTIC_FA22-SP24" History

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2022-10-04 - 3:52:28 PM GMT

Document emailed to Jason Dearman (jdearman@losmedanos.edu) for signature
2022-10-04 - 3:53:30 PM GMT

Email viewed by Jason Dearman (jdearman@losmedanos.edu)
2022-10-18 - 7:16:12 PM GMT

Document e-signed by Jason Dearman (jdearman@losmedanos.edu)
Signature Date: 2022-10-18 - 7:16:53 PM GMT - Time Source: server

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2022-10-18 - 7:16:55 PM GMT

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2022-10-18 - 7:42:53 PM GMT

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2022-10-18 - 7:43:40 PM GMT

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2022-10-18 - 9:17:55 PM GMT

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2022-10-19 - 7:25:15 PM GMT