

Grossmont-Cuyamaca College Community District
Articulation Agreement

High School Course	Credits	College Course	Units
Auto Engine Performance-Emission Control 1, 2	10.0	AUTO 120 Engine Performance I-Mechanical & Ignition Systems	5.0

High school(s): Grossmont High School, Monte Vista	College: Cuyamaca
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1. Course Prerequisites

"C" grade or higher or "Pass" in AUTO 099,100 or equivalent

2. Recommended Preparation

None

3. College Course Description

First in a three course series dealing with engine performance. Begins with a review of basic engine mechanical systems and an introduction to vehicle emissions and computer scanners, followed by a detailed study of current ignition systems. Students will be required to complete associated tasks in the shop as specified by NATEF (National Automotive Training Educational Foundation). Initial preparation for ASE Engine Performance (A-8) Certification.

4. Required Content for Articulation

1) Lecture:

- a. Introduction and safety
- b. Engine fundamentals
- c. Engine measurements
- d. General engine diagnosis
- e. Introduction to basic electrical principles
- f. Introduction to use of DVOM (Digital Volt Ohm Meter)
- g. Introduction to battery, starter and alternator testing
- h. Automotive wiring diagrams as associated with ignition and related systems
- i. Ignition system, operation and diagnosis including distributor, distributorless ignition and Coil on Plug systems
- j. Cooling system operation, testing and service
- k. Ignition tune-up maintenance procedures
- l. Oscilloscope function and operation
- m. Introduction to infrared emission analyzer
- n. Computerized ignition timing controls

2) Lab:

- a. Hand tool selection and usage
- b. General engine diagnosis
- c. Introduction to use of DVOM
- d. Basic battery, starter and alternator testing
- e. Cooling system diagnosis and repair
- f. Ignition system troubleshooting and repair including distributor, distributorless ignition and Coil on Plug systems
- g. Maintenance tune-up procedures
- h. Valve adjustment
- i. Electronic service information access
- j. Diagnostic equipment usage
- k. Introduction to scan tool usage

5. Required Competencies (SLOs) for Articulation

Students will be able to:

- 1) Demonstrate standardized safety and hazardous waste handling practices.
- 2) Apply engine operating theory to diagnosis of engine drivability problems.
- 3) Perform engine ignition and cam timing repairs to prescribed industry standards.
- 4) Utilize required tools and equipment to diagnose engine ignition and mechanical problems.
- 5) Perform electrical diagnosis utilizing DVOM, oscilloscope and principles of electricity.
- 6) Utilize scan tool to identify and repair specific ignition problems.
- 7) Utilize manufacturers repair information and technical service bulletins for accurate diagnose and repair.

6. Assessment Methods

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Quizzes, written exams, and hands-on performance exam that measure students' ability to safely identify necessary action or repair, diagnose engine mechanical and ignition systems, and perform necessary tasks related to these systems.
- 2) Practical exercises that measure students' progress toward mastering tasks related to diagnosis, replacement, repair, testing, and adjustment of engine mechanical, ignition and related systems and components.
- 3) Skills-based summative assessment that measures students' ability to successfully complete the necessary NATEF tasks related to diagnosis, replacement, repair, testing, and adjustment of engine mechanical and ignition systems and components.

7. RUBRIC: Attached

8. Texts and other supporting materials (software, etc.)

- 1) Required (representative example): Pickerill, *Automotive Engine Performance Classroom/Shop Manual*. 5th edition. Cengage Learning, 2009.

9. Criteria for Course Articulation

- a. High school and college teachers attend articulation meetings to determine curriculum alignment and articulation competency rubric.
- b. Student must pass high school course with a grade of "B" or better and have mastered course competencies as identified in the articulation competency rubric.

Agreement was based on Statewide Career pathways Project Template: Yes X No

Name of Template Used: Introduction to Automotive Technology

Articulation meeting held: December 1, 2017

Expiration Date: December 1, 2020

Effective date: Fall 2017

High School/CTE/Signatures

Teacher [Signature] 12/1/17
Date

Teachers (print name) Jordan Leh

Principal [Signature] 12/1/17
Date

GROSSMONT
High School

College Signatures

Instructor/Division Chair, Cuyamaca [Signature] 12-5-17
Date

Instructor/Division Chair (print name) Brad McCombs

Dean of Instruction, Cuyamaca [Signature] 12-6-17
Date



ADDENDUM A

Grossmont-Cuyamaca Community College District Articulation Agreement

Course Being Articulated	Credits	College Course	Units
Auto Engine Performance-Emission Control 1,2	10.0	Auto 120 – Engine Performance 1 – Mechanical & Ignition Systems	5.0
School/Institution: Grossmont High School		College: Cuyamaca College	

Reason for Addendum:

The parties below agree that the original Articulation Agreement for Auto 120-Engine Performance 1 – Mechanical & Ignition Systems between Grossmont High School and Cuyamaca College, to which this is attached as Addendum A, will be extended for one year through December 1, 2021, in order to bring it current with other Articulation Agreements regarding Grossmont Union High School District’s articulated automotive courses and allow for future review and renewal of all automotive courses on the same dates.

Effective date: Immediately

Expiration Date: 12/1/2021

School or Institution/CTE Signatures

College Signatures



Teacher Date



Department Lead, Cuyamaca College Date

Jordan Lehr

Teacher (Print Name)

Brad McCombs

Department Lead (Print Name)



Principal/Director Date

Larry

Career Education Dean, Cuyamaca College Date

Grossmont High School

School/Institution

Larry McLemore

Career Education Dean (Print Name)

Larry McLemore

Signature: 

Larry McLemore (Mar 10, 2021 10:52 PST)

Email: larry.mclemore@gcccd.edu