



Discipline: Transportation
Date Submitted: April 1, 2024

**Cerritos College
 ARTICULATION AGREEMENT**

<p>Cerritos College Course: AUTO 110 Automotive Engines (5 units)</p> <p>Cerritos College 11110 Alondra Blvd. Norwalk, CA 90650</p>	<p>Downey High School Course: Automotive Engines</p> <p>Downey High School 11040 Brookshire Ave. Downey, CA 90241</p>
<p>General Course Description: This theoretical and practical course in Automotive Engine Repair includes operating principles and descriptions of all components. Emphasis is on the diagnosis and measurement of internal engine components. Students complete the disassembly and reassembly of engines using special service tools. Overhead camshaft engines will be the primary focus.</p> <p>The Automotive Technologies: Maintenance and Light Repair Capstone course provides in-depth training and extensive hands-on work-based learning practice with the proper use of equipment utilized in the automotive field.</p>	
<p>College Prerequisite(s): none</p>	<p>HS Prerequisite(s): none</p>
<p>Advisories/Recommendations: AUTO 100 - Automotive Maintenance and Operation</p>	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Shop Safety <ul style="list-style-type: none"> • Safety precautions using tools and equipment 2. Tools, Measurements, and Manuals <ul style="list-style-type: none"> • Tools of the trade • Measurements - standard and metric • Measurements using service tools and equipment in service information • Shop Manuals • Applicable service information and specifications with online service manual databases 3. Test Equipment <ul style="list-style-type: none"> • Functions equipment tests and problems equipment can diagnose • Hand-held (scan-tool) diagnostic tools to perform cylinder balance and compression testing 	

4. Engine Design

- Crankshaft components
 - Crankshafts and parts
- Cylinder Heads
 - Cylinder head types and differences
- Engine components and functional differences between aluminum heads and engine blocks versus cast iron components
- Valve Train
 - Cylinder and valve arrangements
- Installing engine main bearings and crankshaft rear seals (install crankshaft and determine bearing clearance)
- Overhead camshaft engine components and proper timing techniques using special service tools and equipment
- Use and techniques of torque-to-yield fasteners
- Thread repair using procedures in service information

5. Engine Disassembly

- Engine disassembly using special service tools and equipment
- Engine assembly using special service tools and equipment

6. Automotive Technologies Careers

- Post-secondary Certification
- Industry Certifications
- Industry Opportunities
- Customer Service Skills Practice
- Work Ethics
- Business Practices
- Resume/Portfolio for Potential Employers

Competencies and Skill Requirements.

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

- Employ appropriate safety practices while conducting automotive service.
- Demonstrate using standard and metric precision measuring instruments.
- Identify and describe different cylinder and valve arrangements.
- Describe overhead camshaft engine components.
- Describe property techniques that apply to torque-to-yield fasteners.
- Demonstrate proper engine disassembly and assembly using special tools and equipment.

Measurement Methods:

- Reading assignments
- Writing or problem solving or skill attainment
- Critical thinking
- Applied presentations
- Failure analysis

Textbooks or Other Support Materials:

Automotive Technology Principles, Diagnosis, and Service, 6th edition 9780135257490 2020







Procedures for Course Articulation:

Cerritos College credit for the articulated course listed above may be received when the following criteria are met:

1. Student has completed the articulated course listed above, *Automotive Engines*, with a grade of "B" or higher.
3. Student must enroll at Cerritos College within two (2) years from the semester date in which the course was completed.
4. Student will complete and submit the Cerritos College *Petition for Credit by Examination for Articulated High School Course* form to the Office of Educational Partnerships & Programs at Cerritos College.
5. A maximum of 30 units may be awarded through credit by examination.

This Agreement will be reviewed annually and will remain in effect until cancelled by either party giving 30 days written notice.

High School/ROP District Signatures**Cerritos College Signatures**

 <u>Trinidad Linares (May 8, 2024 19:30 PDT)</u>	May 8, 2024	 <u>Joe Mulheary (May 10, 2024 08:37 PDT)</u>	May 10, 2024
Instructor/Department Chair	Date	Faculty/Department Chair	Date
 <u>Tom Houts (May 9, 2024 07:57 PDT)</u>	May 9, 2024	 <u>Yannick Real (May 10, 2024 08:37 PDT)</u>	May 10, 2024
Principal	Date	Dean of Instruction	Date
 <u>John A. Garcia, Jr. (May 10, 2024 07:57 PDT)</u>	May 10, 2024		May 10, 2024
Superintendent	Date	Vice President	Date