



Discipline: Automotive Technology
 Date Submitted: February 8, 2012

Cerritos College Articulation Agreement

Cerritos College Course: Auto 100, Automotive Maintenance and Operation Cerritos College 11110 Alondra Blvd. Norwalk, CA 90650	Automotive Mechanics Tri-Cities Regional Occupational Program 12519 E. Washington Blvd. Whittier, CA 90602
General Course Description: This course is designed to prepare students for entry-level employment in the automotive field. Emphasis will be placed on the safe and proper use of tools and equipment. Students will learn about major automobile repair, tune-ups, brakes, valve grinding and transmission repair work. The class is taught in a combination of classroom and on-the-job training.	
College Prerequisite(s): None	HS/ROP Prerequisite(s): None
Advisories/Recommendations: None	
Course Content: 1. Career preparation skills 2. Legal aspects that impact auto mechanics 3. Review hand and power tools 4. Internal combustion engines 5. Automotive fuel systems and emission control system 6. Automotive clutch mechanism 7. Automotive final drive units 8. Manual and automatic transmissions 9. Automotive suspension systems 10. Tires, wheel and bearings 11. Braking system components 12. Automotive electrical, charging and starting systems 13. Automotive air conditioning 14. Automotive engines	
Competencies and Skill Requirements. At the conclusion of this course, the student should be able to: 1. Understand occupational safety issues including body mechanics, diagnostic equipment, tools and the avoidance of physical hazards for self and customers. 2. Understand career paths and strategies for obtaining employment. 3. Adapt to changing technology. 4. Understand the legal aspects that affect the auto mechanic. 5. Identify hand tools and their uses. 6. Apply, test and diagnose problems with various types of diagnostic equipment. 7. Write the diagnostic result and an estimate for the labor and parts appropriate to industry standards.	

8. Identify the design and construction of 4 internal combustion engines; be able to label the components and accessories of an internal combustion engine.
9. Differentiate among internal combustion engines regarding classification, fuel burned, cooling type and type of valve arrangement.
10. Perform engine service and demonstrate cleaning techniques.
11. Demonstrate knowledge of friction, viscosity and lubrication types consistent with industry standards.
12. Identify and describe the functions of the parts of a fuel injection system.
13. Label the different parts in the exhaust gas recirculation and explain their function.
14. Change oil and oil filter, transmission fluid and filter, and brake fluid.
15. Describe the EGR system and test the operation of it.
16. Write an estimate of the cost of parts and labor to diagnose and repair an emission control system.
17. Diagnose and repair at least 5 items in the emission control system.
18. Identify and explain the function of the flywheel, friction disc, pressure plate, release bearing fork, mechanical clutch system and hydraulic clutch system.
19. Install and adjust a mechanical and hydraulic clutch system.
20. Identify at least 5 gears and shafts in a manual transmission on a diagram.
21. Explain the operation of an overdrive unit.
22. Identify and label the parts of an automatic transmission.
23. Perform preventive maintenance on a drive train.
24. Identify parts of an automotive final drive units.
25. Discuss the operation of a ball joint.
26. Explain the difference between caster, camber and toe-in on a front and alignment rack.
27. Identify two types of front and rear wheel bearings.
28. Show an ability to properly check for lateral and radial runout on both tires and wheels.
29. Demonstrate procedure for removing and replacing a tire on a wheel.
30. Describe the principles of the ABS.
31. Disassemble, identify components and reassemble a master cylinder.
32. Diagnose 2 types of brake problems.
33. Locate, install, diagnose, repair and test at least 2 distributors.
34. Locate the microprocessor and basic electronic connections to access the memory for electronic component testing.
35. Demonstrate ability to identify color code of High Voltage Systems.
36. Demonstrate ability to use a labscope and scanners to measure amplitude and pulse width.
37. Write an estimate for replacing a new and a rebuilt alternator.
38. List at least 5 automotive electrical component parts that use principles of electromagnetism.
39. Diagnose and service a starting system using various electrical testing equipment.
40. Read a pressure temperature relationship chart to test and service an air conditioning system.
41. Test the coolant and heating system for proper operation.
42. Identify and discuss different types of refrigerants.
43. Remove and replace an engine from/to car chassis.
44. Tear down an engine to its basic components.
45. Replace damaged or worn engine components.
46. Reassemble engines following an overhaul manual.

Measurement Methods:

1. Quizzes
2. Homework
3. Projects

- 4. Notebook assignments
- 5. Student workplace skills (soft skills)

Textbooks or Other Support Materials:

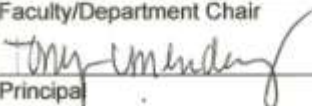
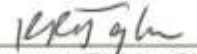
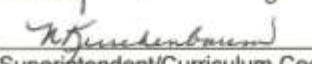

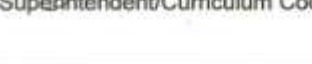
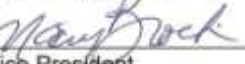
Automotive Technology: A Systems Approach, 4th Edition. By Erjavec, J.

Procedures for Course Articulation:

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

- 1. The student has completed the articulated course listed above with a "B" grade or higher in Automotive Mechanics at Tri-Cities ROP.
- 2. The student takes the credit by exam given by Cerritos College Automotive Department and passes the exam.
- 3. The student must enroll at Cerritos College within two (2) years from the semester date in which the course was completed.
- 4. The student will present verification of successful completion of the articulated course by presenting a *Cerritos College Articulation Card* to a Cerritos College Counselor. The *Cerritos College Articulation Card* should be completed and signed by the student's high school counselor or teacher.
- 5. No more than 12 units of credit may be accepted for 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	
Faculty/Department Chair	Date	Instructor/Division Chair	Date
	2/14/12		2-23-12
Principal	Date	Dean of Instruction	Date
	2-14-12		2/26/12
Superintendent/Curriculum Coordinator	Date	Vice President	Date
			3/2/12