

COURSE OUTLINE

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CourseOutline-OneCourse.rpt

Course: 10058 Automotive Technology**CBEDS Title:** AUTOMOTIVE SPECIALTY**CBEDS Number:** 5688**Job Title(s):**

DOT	TITLE
(Year 1)	
620.684-014	Automotive Mechanics Helper
801.687-010	Engine Assembly Helper
806.684-038	Accessory Installer
825.684-010	Electrical Helper
620.261-018	Shop Estimator
915.684-010	Tire Repair
620.261-034	Auto Cooling System Technician
620.281-034	Carburetor Repair
(Year 2)	
620.281-066	Tune-up Technician
620.281-010	A/C Technician
620.281-026	Brake Repairer
620.281-038	Front End Technician
620.281-062	Transmission Technician
620.261-034	Automotive Tech., Cooling System
620.281-014	Automotive Tech., Exhaust Emissions

Course Description:

Automotive Technology Year One is designed to prepare the student for entry-level employment in the automotive service industry. Instruction includes both theory and lab experiences, and is a prerequisite for Automotive Technology Year Two. Training skills prepare the student for entry-level employment as automotive technician helper, engine assembler helper, accessory installer, electrical helper, tire repairer, auto cooling system technician and carburetor repairer.

Automotive Technology Year Two is designed to prepare the student for entry-level employment in the automotive service industry as tune-up technician, shop estimator, auto technician, a/c technician, brake repairer, front-end technician, transmission technician and automotive technician - exhaust emission.

Hours:

Classroom	946	Classroom	946
Community Site (CC)	453	Coop VocEd (CVE)	453
Total:	1,399	Total:	1,399

Prerequisites:

Basic reading, writing and math skills or Assessment for ITP (Individualized Training Plan).

Date of Last Revision: October 23, 2003**Additional Course Information:****Methods of Evaluation:****Grading Policy**

1. **Excellent - A**
 - a. Complete all minimum course objectives.
 - b. Participate in 90% of class discussion and lab assignments. Make-up time available.
 - c. Maintain test score average 86% or more.
 - d. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include:
 1. safety

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2. cleanliness of work areas and oneself
3. assistance to and with others
4. care of customer vehicles and other property
5. punctuality

2. Above Average - B

- a. Complete all minimum course objectives.
- b. Participate in 80% of class discussions and lab assignments. Make-up time available.
- c. Maintain test score average 75% - 85%.
- d. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include:
 1. safety
 2. cleanliness of work areas and oneself
 3. assistance to and with others
 4. care of customer vehicles and other property

3. Average - C

- a. Complete all minimum course objectives.
- b. Participate in 70% of class discussions and lab assignments. Make-up time available.
- c. Maintain test score average 65% - 74%.
- d. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include:
 1. safety
 2. cleanliness of work areas and oneself
 3. assistance to and with others
 4. care of customer vehicles and other property

4. Barely Passing - D (Not recommended for trade employment)

- a. Complete all minimum course objectives.
- b. Participate in 60% of class discussion and lab assignments. Make-up time available.
- c. Maintain test score average 51% - 64%.

5. Failure - F

- a. Not meeting requirements for D grade in all three areas of evaluation (parts a, b, & c).
- b. Test scores 50% or below.

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- A** Student has completed requirements for an ROP certificate.
- B** Student has not completed requirements for an ROP certificate.
- C** Student has received Votech Honda Certificate.
- D** Student qualifies for articulation credit from Riverside Community College for AUT 50.
- E** Student qualifies for articulation credit from Mt. San Jacinto College for AUME 100.
- F** Student qualifies for articulation credit from Mt. San Jacinto College for AUME 119.
- G** Student qualifies for articulation credit from Mt. San Jacinto College for AUME 120.
- H** Student qualifies for articulation credit from Mt. San Jacinto College for AUME 122.

2 ROPERS-This student applies academic and occupational skills to become a successful lifelong learner who is:

- A** CONFIDENT with a Positive Attitude.
- B** CONFIDENT and shows Initiative.
- C** CONFIDENT and is an Effective Communicator.
- D** RESPONSIBLE and demonstrates good Time Management.
- E** RESPONSIBLE and displays good Work Ethics.
- F** RESPONSIBLE and a Productive Citizen.
- G** KNOWLEDGEABLE and maintains high Academic Standards.
- H** KNOWLEDGEABLE of Career Preparation and Goal Setting.
- I** KNOWLEDGEABLE of Job Search and Job Retention Skills.
- J** KNOWLEDGEABLE and is a Critical and Creative Thinker.
- K** KNOWLEDGEABLE of the Occupational Competencies of this course.
- L** KNOWLEDGEABLE and uses the appropriate Technology in this course.
- M** a TEAM PLAYER demonstrating Flexibility and Adaptability.
- N** a TEAM PLAYER and a Cooperative Learner.
- O** a TEAM PLAYER who demonstrates Conflict Resolution skills.
- P** a TEAM PLAYER who displays an understanding of Cultural and Social Diversity.

3 CAREER PREPARATION STANDARDS - Personal skills

- A** Designs ongoing personal skill development for improved employability, including maintaining a positive attitude, honesty, self-confidence, time management, and other positive traits.

4 CAREER PREPARATION STANDARDS - Interpersonal skills

- A** Utilizes effective interpersonal skills, including conflict resolution and negotiation, while effectively accommodating group dynamics.

5 CAREER PREPARATION STANDARDS - Academic skills

- A** Employs appropriate academic skills, critical thinking, and problem-solving for the workplace.

6 CAREER PREPARATION STANDARDS - Effective Communication

- A** Uses the principles of effective communication in written and verbal communications.

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7 CAREER PREPARATION STANDARDS - Safety issues

- A** Recognizes occupational safety hazards, demonstrates appropriate prevention measures, and observes safety rules for the work environment.
- B** Successfully completes an occupationally specific safety assessment.

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8 CAREER PREPARATION STANDARDS - Career paths

- A** Identifies occupational career paths of interest and models effective strategies for obtaining employment.
- B** Composes accurate, effective job acquisition documents, including a job application, resume and cover letter; and employs appropriate follow-up techniques.
- C** Practices effective interviewing techniques.
- D** Recognizes behavior and attitudes that contribute to employee retention and promotion, and models appropriate worksite attire and appearance.
- E** Chooses and employs current technologies for the job search and application process.

9 CAREER PREPARATION STANDARDS - Technology

- A** Identifies, utilizes and adapts to changing technology.

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10 Orientation to ROP

- A** Completes a course orientation.
- B** Recognizes sexual harassment as defined by California and Federal Law.
- C** Models effective strategies for resolving sexual harassment situations.
- D** Evaluates and describes appropriate technology ethics for the workplace.

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11 General Automotive

- A** Practices safe working habits in the shop.
- B** Demonstrates proper use of hand tools, power tools, and equipment.
- C** Locates, reads, and understands Material Safety Data Sheets (MSDS's) in shop.
- D** Follows fire prevention and control procedures.
- E** Demonstrates proper use of measuring instruments.
- F** Performs basic lubrication and maintenance techniques.
- G** Demonstrates safe welding practices.
- H** Uses shop estimating resources.
- I** Uses service reference materials.
- J** Fills out work orders to state standards.
- K** Diagnoses and repairs basic power train systems.
- L** Diagnoses and repairs vacuum systems.
- M** Demonstrates proper use of a scan tool.
- N** Demonstrates safe use of hoist.
- O** Demonstrates safe use of floor jack, safety stands, and wheel chocks.
- P** Demonstrates tool and inventory control.
- Q** Demonstrates shop management skills.
- R** Practices appropriate clean up and maintenance skills.
- S** Utilizes internet based information services.
- T** Demonstrates safe handling of hazardous waste materials and appropriate disposal methods.
- U** Identifies and utilizes appropriate securing fasteners and sealants.

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12 Engine Repair

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- A** Identifies and interprets engine concern; determines necessary action.
- B** Inspects, tests, and repairs cooling systems.
- C** Inspects, tests, and repairs lubrication systems.
- D** Disassembles, measures, evaluates, and reassembles engines.
- E** Demonstrates proper use of valve refacing machine.

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13 Automatic Transmission

- A** Identifies and interprets transmission/transaxle concern; assures proper engine operation; determines necessary action.
- B** Checks automatic transmission level and evaluates condition and level of fluid.
- C** Performs basic transmission service.

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14 Manual Transmission and Drive Train

- A** Identifies and interprets drive train concern; determines necessary action.
- B** Inspects, removes, evaluates, repairs, and installs drive train components.
- C** Diagnoses noise, hard shifting, jumping out of gear, and fluid leakage concerns; determines necessary action.
- D** Disassembles, measures, evaluates, and reassembles manual transmissions.

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15 Suspension and Steering

- A** Identifies and interprets suspension and steering concerns; determines necessary action.
- B** Performs basic front end alignment.
- C** Performs basic tire maintenance techniques.
- D** Demonstrates proper use of a tire mounting machine.
- E** Demonstrates proper use of a tire balancer.
- F** Demonstrates proper use of computerized wheel alignment equipment.
- G** Inspects, diagnoses, and repairs basic suspension systems.
- H** Practice the care and safe use of specialized automotive service tools and equipment.
- I** Inspect, diagnose, repair, and align steering and suspension systems using modern alignment equipment.
- J** Demonstrate the repair of steering columns.
- K** Compare and contrast various types of chassis construction and list their manufacturer.
- L** Compare and contrast various types of alignment equipment.

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16 Brakes

- A** Identifies and interprets brake system concerns; determines necessary action.
- B** Performs basic brake maintenance techniques.
- C** Demonstrates proper use of brake lathe.
- D** Describe the function and principles of hydraulics in automotive brake systems. components in a drum brake system.
- E** Compare the design and function of drum and disc brake systems.
- F** Identify the components in a disc brake system.
- G** Test and analyze hydraulic components for proper operation and leaks.
- H** Demonstrate the proper use of micrometers to measure brake rotors and drums.
- I** Disassemble, clean and inspect brake components, and evaluate the need for repair or replacement of faulty components.
- J** Appraise brake rotors and drums for maximum wear and run-out.
- K** Perform a proper road test to evaluate poor braking, vibration and abnormal brake pedal height.

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- L** Assess power assist systems, and differentiate failures between hydraulics, power assist, and the brake components.
- M** Differentiate the purpose and function of Anti-Lock Brake Systems (ABS)
- N** Demonstrate the proper use of tools needed to test and repair brake systems.
- O** Demonstrate the proper use of technical manuals, and apply manufactures recommended specifications and procedures to the tasks they are performing.

152 133 133 **17 Electrical**

- A** Applies electrical theory; tests circuits using basic test equipment.
- B** Inspects, tests, and repairs starting systems.
- C** Inspects, tests, and repairs charging systems.
- D** Inspects, tests, and repairs accessory systems.
- E** Inspects, tests, and repairs lighting systems.
- F** Compare and contrast the electrical system using a VAT45 or equivalent computerized tester.

22 **18 Heating and Air Conditioning**

- A** Identifies and interprets heating and air conditioning concern; determines necessary action.
- B** Inspects, tests, and repairs heating systems.
- C** Inspects, tests, and repairs external air conditioning controls.
- D** Demonstrates proper air conditioning servicing procedures.

210 170 170 **19 Engine Performance**

- A** Identifies and interprets engine performance concern; determines necessary action.
- B** Inspects, tests, and repairs basic fuel systems.
- C** Inspects, tests, and repairs crankcase emission systems.
- D** Inspects, tests, and repairs evaporative emission systems.
- E** Inspects, tests, and repairs exhaust emission systems.
- F** Inspects, tests, and repairs electric fuel pumps.
- G** Performs basic tune-up.
- H** Diagnoses and repairs engine performance problems.
- I** Diagnoses and repairs on board computer systems.
- J** Diagnoses and repairs ignition systems.
- K** Diagnoses and repairs electronic fuel injection systems.
- L** Retrieves and interprets OBDI trouble codes.
- M** Retrieves and interprets OBDII trouble codes.
- N** Demonstrates basic understanding of the digital oscilloscope.
- O** Demonstrates basic understanding of the 4-gas analyzer, to determine the operating condition of a conventional vehicle and determine appropriate adjustments.
- P** Explain verbally or in writing how the four-stroke cycle operates.
- Q** Demonstrate, in writing or by correctly diagnosing faults, the operating relationships of the major components of engine block, heads, valves, cam, timing mechanisms, ignition and fuel systems.
- R** Define verbally or in writing the following terms: bore, stroke, displacement, compression ratio, torque, horsepower, engine pressures, and volumetric efficiency.
- S** Perform diagnostic tests to determine the operating condition of a conventional gasoline engine.
- T** Perform various tune-up adjustments as needed according to industry standards.
- U** Determine specifications for tune-up and repairs using manuals and electronic data resources.
- V** Perform idle mixture and speed adjustments according to specifications and industry standards.
- W** List the major automotive air pollutants and how they are formed.

20 Certificates of Merit

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- A** Student has received Certificate of Merit for "Outstanding Student".
- B** Student has received Certificate of Merit for "Student of the Month".
- C** Student has received Certificate of Merit for "Perfect Attendance".
- D** Student has received Certificate of Merit for "Academic Excellence".
- E** Student has received Certificate of Merit for "Most Improved".
- F** Student has received Certificate of Merit for "Outstanding Attendance".

Job Attitudes

- 1**
 - A** Meets ROP expectations and follows class rules, regulation, and safety procedures.
 - B** Student is punctual and dependable.
 - C** Follows directions.
 - D** Works well with minimum supervision.
 - E** Is cooperative.
 - F** Takes initiative by working beyond minimum requirements.
 - G** Meets job standards of neatness and grooming.
 - H** Responds appropriately to criticism.
- 2**
 - A** Student has received instruction in job seeking and job keeping skills.
 - B** Lists appropriate career ladders and training resources.
 - C** Student has received Certificate of Merit.