

COURSE OUTLINE**Course:** 12345 AUTOMOTIVE PERFORMANCE AND CUSTOMIZATION**Total Course Hours:** 540.00**CBEDS Title:** AUTOMOTIVE SPECIALTY, OTHER COMBINATION**CBEDS #:** 5688**Job Title(s):**

Technician Installer, Installer, Fabricator, Mechanics Helper, Apprentice Installer,

Prerequisites:

One year of Automotive 1, Automotive 101, Auto Quick Serve or Consumer Auto. Exception would be teacher recommendation or student challenge and pass Auto 1 exam.

Course Description:

Automotive Performance and Customization will explore the application of aftermarket automotive components. Modifications of interior, exterior, drive train and other components will be addressed. Theory and hands-on applications are addressed through student projects that incorporate fabrication, utilization of aftermarket products and other specialized automotive marketing concepts.

In depth discussions will center on the legal aspects of automotive modification and being street legal. Students will discuss and contrast applicable laws, rules and government entities that regulate the automotive industry.

Integrated throughout the course are Academic and CTE standards, which include safety, communication, technology, ethics, career planning and other employability skills.

Hours	
Class	OJT

Occupational Competencies

1-7 on the Course Outline are generic to all BVROP courses and include the BVROP Student Outcomes

3.00		1 <u>ORIENTATION</u>
		<ul style="list-style-type: none"> A Identifies and discusses course objectives and competencies. B Discusses ROP Student Outcomes. C Explains class attendance and behavior objectives.
3.00		2 <u>HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT</u>
		<ul style="list-style-type: none"> A Describes accident procedure. B Demonstrates appropriate safety practices (e.g. bending, lifting, etc.). C Demonstrates knowledge of classroom procedures and drills (e.g. earthquake, fire and emergency).
3.00		3 <u>ETHICS AND LEGAL RESPONSIBILITIES</u>
		<ul style="list-style-type: none"> A Defines sexual harassment and discusses tactics for handling harassment situations. B Applies appropriate workplace behavior and standards.
3.00		4 <u>LEADERSHIP AND TEAMWORK</u>
		<ul style="list-style-type: none"> A Describes the characteristics and benefits of teamwork and leadership. B Demonstrates ability to make appropriate decisions. C Works well with others and gives/takes constructive criticism.

Hours	
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| 15.00 | | 5 | <u>CAREER PLANNING</u> | <ul style="list-style-type: none"> A Prepares a finished, professional portfolio showing the best work that has been completed during the class. B Locates job opportunities through the use of want-ads and placement agencies. C Visits at least one facility related to area of training and observes jobs performed. D Completes a job application correctly. E Prepares for and critiques a simulated employment interview. F Discusses employee benefits and rights as related to the specific occupational job area including gender equity and equal opportunity. G Identifies acceptable procedures to leave a job. H Applies for a scholarship. I Completes a professional resume. J Demonstrates appropriate personal grooming and dress. |
| 3.00 | | 6 | <u>COMMUNICATION</u> | <ul style="list-style-type: none"> A Uses effective workplace conversation. B Reads and interprets written information and directions. C Practices various forms of written communication appropriate to the occupation. |
| 5.00 | | 7 | <u>STUDENT OUTCOMES</u> | <ul style="list-style-type: none"> A Demonstrates Occupational Specific, Communication and Critical Thinking Skills B Demonstrates Responsible Work Ethics C Demonstrates Career/Employment Literacy D Demonstrates Effective Use of Technology |
| 35.00 | | 8 | <u>ENGINE OPERATION AND MEASUREMENT</u> | <ul style="list-style-type: none"> A Describes and understands the physical components of various engines B Describes and understands the operation of piston engines. C Applies and uses engine displacement to understand engine measurement. D Identifes, describes and applies engine output and efficiency. |
| 40.00 | | 9 | <u>ENGINE MODIFICATIONS</u> | <ul style="list-style-type: none"> A Understands the principles of engine performance. B Describes the use of engine aftermarket components to enhance engine performance. C Applies the use of engine aftermarket components to enhance engine performance. D Describes and understands the application of aftermarket products and their affects for smog requirements and legality. E Describes, applies and installs specialized aftermarket components to enhance overall automobile performance. F Describes the benefits of aftermarket specialty items such as NOS, turbochargers, etc. |
| 35.00 | | 10 | <u>INTERNAL ENGINE PERFORMANCE</u> | <ul style="list-style-type: none"> A Describes and understands compression ratio. B Describes and understands bore and stroke. C Describes the relationship between camshaft and valve train. D Selects and installs aftermarket heads for engine performance enhancement. E Describes various types of ignition systems and their benefits to overall engine performance. F Compares and contrasts engine oiling systems. |

Hours	
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| 35.00 | | <p>11 <u>EXTERNAL ENGINE PERFORMANCE</u></p> <ul style="list-style-type: none"> A Describes the functions of the ignition system. B Compares and contrasts various types of fuel systems and their individual components. C Compares and contrasts fuel injection, turbo charging and carburetion systems. D Describes and understands air intake systems. E Understands the functions of headers. F Compares and describes various types of exhaust systems. G Understands the functions of engine cooling systems and the affect on engine performance. H Describes and analyses computer systems for OEM and aftermarket applications. |
| 35.00 | | <p>12 <u>ELECTRCIAL SYSTEMS</u></p> <ul style="list-style-type: none"> A Describes basic automotive electrical fundamentals. B Compares and contrasts batteries and battery ratings. C Describes the function of the starter. D Describes and understands the electrical charging system. E Compares, contrasts and applies various ignition systems. |
| 35.00 | | <p>13 <u>AUTOMOTIVE TRANSMISSIONS</u></p> <ul style="list-style-type: none"> A Describes the purpose of gear ratios and torque convertors for various types of transmissions. B Compares and contrasts multiple type of transmissions. C Describes and understands the fluid coupling torque converter. D Describes planetary gears. E Applies hydraulic control for bands and clutch. F Compares and analyzes synchronizers and transaxles. |
| 35.00 | | <p>14 <u>DRIVE LINES, UNIVERSAL JOINTS, REAR AXLES AND DIFFERENTIALS</u></p> <ul style="list-style-type: none"> A Describes the purpose of drivelines, axles and universal joints. B Understands differential gearing and nonslip differential. C Describes the purpose of universal joints, slip joints and center supports. D Compares and contrasts front wheel and rear wheel drive automobiles. |
| 35.00 | | <p>15 <u>SUSPENSION SYSTEMS</u></p> <ul style="list-style-type: none"> A Describes types of suspension components. B Understands the difference between torison-bar, air suspension, 4-bar, and other suspension systems. C Describes various types of shock absorbers and their operations. |
| 25.00 | | <p>16 <u>STEERING SYSTEMS</u></p> <ul style="list-style-type: none"> A Describes and applies front end geometry. B Describes and understands the functions of steering gears, rack and pinion, and power steering. |
| 35.00 | | <p>17 <u>BRAKES</u></p> <ul style="list-style-type: none"> A Describes purpose and relationship of friction and hydraulics in brake operations. B Understands the function of master cylinder and dual master cylinder systems. C Performs disc and drum brake servicing. D Describes the purpose and function of metering valves, proportioning valves and anti-skid devices. |
| 30.00 | | <p>18 <u>TIRES</u></p> <ul style="list-style-type: none"> A Describes tire construction and tire tread. B Explains and applies the effects of aftermarket tires and rims on automobiles. C Understands tire sizing and wheel size. |

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45.00	19 INTERIOR AND EXTERIOR MODIFICATION
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- A Understands and installs aftermarket gauges.
- B Fabricates, finishes and installs custom gauge panels.
- C Performs custom seats installation.
- D Describes and installs aftermarket customizing components for automobile interiors.
- F Installs aftermarket exterior components.
- G Describes and understands the legal issues for installing aftermarket components.

25.00	20 HAND AND POWER TOOLS
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- A Selects and uses the proper tool for assigned work.
- B Describes the various types of hand tools in automotive customization processes.
- C Practices appropriate shop safety when using tools.
- D Uses proper power tools for assigned work tasks.
- E Describes the use of English wheel.
- F Describes and uses planishing hammer.
- G Describes and uses metal brake.
- H Uses appropriate welding equipment for assigned tasks.
- I Describes the differences between MIG and TIG welding.
- J Uses MIG, TIG and ARC welders to complete assigned tasks.
- K Operates and uses plasma cutter.

20.00	21 CUSTOMER SERVICE SKILLS
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- A Applies and uses appropriate customer skills.
- B Utilizes conflict resolution skills when dealing with customers.
- C Understands the relationship between customer service skills and the successful business operation.
- D Understands and promotes the issues of street legal when dealing with customers.
- E Works with customers to develop an understanding of the effects of automotive aftermarket customizing.

40.00	22 APPLIED ACADEMICS
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- A Uses and applies mathematical concepts for driveline, suspension, engine and related modifications.
- B Understands and applies fluid (hydraulics) concepts.
- C Describes and understands power formulas.
- D Understands and applies degree, angle and related math concepts when installing or modifying automobiles.
- E Describes aerodynamics and the effects on car modification.
- F Utilizes science concepts when describing power transmission applications.
- G Understands and describes the connection between friction, air mass, air flow and other related processes.
- H Understands and applies concepts of performance enhancing gases on automotive engine performance.
- I Describes and relates electrical system enhancements on engine performance.

TOTAL HOURS

Class	OJT	Course
540.00	0.00	540.00