

# AUTOMOTIVE SPECIALIZATION (Engine Performance)

## STUDENT GRADE RECORD

### *Career & Technical Education*

### WINDHAM SCHOOL DISTRICT

Student Name \_\_\_\_\_

TDCJ # \_\_\_\_\_

Instructor Name \_\_\_\_\_

Unit \_\_\_\_\_

WSD Certificate	Y / N
If I were hiring for this position, I would: (check one) <input type="checkbox"/> 0-No recommendation at this time. (Cannot be used for Completers.) <input type="checkbox"/> 1-Hire this person and look no further. <input type="checkbox"/> 2-Interview this person along with other applicants <input type="checkbox"/> 3-Not hire this person.	
<b>Complete only if student attempted industry certification.</b>	
Name of Industry Certificate	Code      P/F
ASE Engine Performance	0218

*I attest that all of the information reported on this form is true.*

\_\_\_\_\_  
Instructor Signature                      Date

Course Outline Modules	Windham Module Test	Module Competency Rating
1. CTE Orientation		
2. Introduction to Engine Performance and Drivability		
3. Safety and Environmental Protection		
4. Tools, Test Equipment, and Service Information		
5. Automotive Formulas and Vehicle Drivability Evaluation		
6. Fundamentals of Engine Construction and Operation		
7. Electricity and Electronic Fundamentals		
8. Computer Control Fundamentals		
9. Ignition System Fundamentals		
10. Fuel System Fundamentals		
11. Emissions Control and Exhaust System Fundamentals		
12. Drive Train and Other System Fundamentals		
13. Basic Diagnostic Procedures		
14. Troubleshooting Techniques		
15. Electrical System Diagnosis and Repair		
16. Computer Control System Diagnosis and Repair		
17. Ignition System Diagnosis and Repair		
18. Fuel System Diagnosis and Repair		
19. Diagnosis and Repair of the Emission Control and Exhaust Systems		
20. Engine Mechanical Diagnosis		
21. Drive Train and Vehicle System Diagnosis		
22. ASE Certification		
23. Career Opportunities in the Automotive Service Field		

<i>Windham Module Test Average</i>		x . 75		a	Completer
<i>Windham End of Course Exam</i>		x . 25		b	
<i>Windham Module Score (a + b=)</i>					70+
<i>% Competencies Completed</i>					70+
<i>Module Competency Rating</i>					2.7+

# AUTOMOTIVE SPECIALIZATION (Engine Performance)

## STUDENT PROGRESS RECORD

### RECORDING DIRECTIONS

**SKILL RATING:** Post the student's competency rating for each skill performed.

**MODULE TEST SCORE:** Enter the student's test score for the module.

**MODULE RATING:** Use the following scale to determine module rating:

**[4] Skilled-** Can perform competencies independently with no supervision.

**[3] Moderately Skilled-** Can perform competencies with limited supervision.

**[2] Limited Skill-** Requires instruction and close supervision to perform competencies.

**[1] Unskilled-** Exposed to concept, but no hands-on experience.

**Note:** When evaluating a student's module rating, skill performance should be given priority.

### 1. CTE Orientation

Teacher Student

Initial Initial

- \_\_\_\_ | \_\_\_\_ 1. Identify employment opportunities related to the course.
- \_\_\_\_ | \_\_\_\_ 2. Identify the number of classroom hours a student must attend to be considered as a completer.
- \_\_\_\_ | \_\_\_\_ 3. Identify the industry-recognized certification.
- \_\_\_\_ | \_\_\_\_ 4. Identify course expectations including:
- Working conditions
  - Attendance expectations
  - Instructor's expectations

### 2. Introduction to Engine Performance and Drivability

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_ 1. Identify the reasons for increasing the efficiency of automobiles and trucks.

### 3. Safety and Environmental Protection

*Module Test Score* \_\_\_\_\_

*Minimum 100% Required*

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_ 1. Identify types of accidents that can occur when working on vehicles.
- \_\_\_\_ 2. Identify unsafe conditions in the shop.
- \_\_\_\_ 3. Identify environmental concerns that affect automotive shops.
- \_\_\_\_ 4. Demonstrate proper waste disposal techniques.

### 4. Tools, Test Equipment, and Service Information

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_ 1. Identify basic electrical test instruments.
- \_\_\_\_ 2. Use basic mechanical test equipment.
- \_\_\_\_ 3. Use starting and charging system testers.
- \_\_\_\_ 4. Use exhaust gas analyzers.
- \_\_\_\_ 5. Demonstrate how to use schematics.

### 5. Automotive Formulas and Vehicle Drivability Evaluation

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_ 1. Use formulas to calculate horsepower and kilowatts.
- \_\_\_\_ 2. Use formulas to calculate electrical properties.
- \_\_\_\_ 3. Convert temperature measurements between U.s. customary and metric units..
- \_\_\_\_ 4. Identify who assesses vehicle performance.

### 6. Fundamentals of Engine Construction and Operation

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_ 1. Identify and explain the purposes of the major components of the engine compression system.
- \_\_\_\_ 2. Identify cooling system parts.
- \_\_\_\_ 3. Identify lubrication system parts.

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## 7. Electricity and Electronics Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify basic electrical circuits.
- \_\_\_\_\_ 2. Make basic electrical measurements.
- \_\_\_\_\_ 3. Identify common vehicle electrical devices.
- \_\_\_\_\_ 4. Identify the uses of common semiconductor devices.

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## 8. Computer Control Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify the key elements of an OBD II system.

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## 9. Ignition System Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify ignition triggering devices.
- \_\_\_\_\_ 2. List the major components of the secondary ignition circuit.

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## 10. Fuel System Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify the function of fuel filters.
- \_\_\_\_\_ 2. Identify the function of intake manifolds and plenums.

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## 11. Emissions Control and Exhaust System Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify the major types of external emission controls.
- \_\_\_\_\_ 2. Identify the major components of the exhaust system.

## 12. Drive Train and Other System Fundamentals

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Identify drive train components having an effect on drivability and performance.
- \_\_\_\_\_ 2. Describe how the air conditioner can affect vehicle operation.
- \_\_\_\_\_ 3. Identify the drivability problems in the braking system.
- \_\_\_\_\_ 4. Identify the steering system problems that can affect drivability.
- \_\_\_\_\_ 5. Identify tire problems that can affect drivability.

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## 13. Basic Diagnostic Procedures

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. List and describe the seven steps of proper troubleshooting.
- \_\_\_\_\_ 2. Apply the seven-step diagnostic procedure to specific drivability problems.

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## 14. Troubleshooting Techniques

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Evaluate driver input concerning vehicle problems.
- \_\_\_\_\_ 2. Make visual checks for underhood problems.
- \_\_\_\_\_ 3. List factors to be considered when deciding to adjust, rebuild, or replace parts.

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## 15. Electrical System Diagnosis and Repair

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Perform a visual inspection of the electrical system.
- \_\_\_\_\_ 2. Use test lights and meters to check the electrical system and components.
- \_\_\_\_\_ 3. Perform electrical tests on various electrical devices.
- \_\_\_\_\_ 4. Make repairs to the electrical system.
- \_\_\_\_\_ 5. Test and service the charging system.
- \_\_\_\_\_ 6. Test and service the starting system.

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## 16. Computer Control System Diagnosis and Repair

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Retrieve ECM trouble codes.
- \_\_\_\_\_ 2. Use a scan tool to check components and systems.
- \_\_\_\_\_ 3. Use a multi meter to check computer control system components.
- \_\_\_\_\_ 4. Replace computer control system input sensors..
- \_\_\_\_\_ 5. Replace an ECM.

## 17. Ignition System Diagnosis and Repair

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Use a scan tool to retrieve ignition system information.
- \_\_\_\_\_ 2. Use a timing light to check engine timing and advance.
- \_\_\_\_\_ 3. Use a scope to check the ignition system .
- \_\_\_\_\_ 4. Adjust ignition system components.

## 18. Fuel System Diagnosis and Repair

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Check the operation of fuel injection systems.
- \_\_\_\_\_ 2. Check for correct air-fuel ratio.
- \_\_\_\_\_ 3. Use scan tools and multimeter to check fuel injection components.
- \_\_\_\_\_ 4. Use fuel pressure testers to check fuel pumps.
- \_\_\_\_\_ 5. Check operation of air control devices.
- \_\_\_\_\_ 6. Adjust idle speed.
- \_\_\_\_\_ 7. Clean throttle bodies and fuel injectors.
- \_\_\_\_\_ 8. Remove, service, and replace fuel injection components.

## 19. Diagnosis and Repair of the Emission Control and Exhaust Systems

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Diagnose problems with components in the emission control system.
- \_\_\_\_\_ 2. Diagnose problems in the EGR system.
- \_\_\_\_\_ 3. Diagnose problems in the evaporative emission control system.
- \_\_\_\_\_ 4. Perform an exhaust gas analysis.
- \_\_\_\_\_ 5. Replace components in the emission control system.
- \_\_\_\_\_ 6. Diagnose problems in the exhaust system.
- \_\_\_\_\_ 7. Replace components in the exhaust system.

## 20. Engine Mechanical Diagnosis

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Diagnose and isolate engine noises.
- \_\_\_\_\_ 2. Use a vacuum gauge to detect engine problems
- \_\_\_\_\_ 3. Use a compression gauge to detect engine problems.
- \_\_\_\_\_ 4. Check turbocharger and wastegate operation.
- \_\_\_\_\_ 5. Check engine oil pressure.
- \_\_\_\_\_ 6. Check valve train parts.
- \_\_\_\_\_ 7. Check valve timing.
- \_\_\_\_\_ 8. Adjust valve clearance.

## 21. Drive Train and Vehicle System Diagnosis

*Module Test Score* \_\_\_\_\_

\_\_\_\_\_ *Module Rating (4, 3, 2, 1)*

- \_\_\_\_\_ 1. Check non-engine systems to identify drivability problems.
- \_\_\_\_\_ 2. Check automatic transmission/transaxle operation.
- \_\_\_\_\_ 3. Check air conditioner operation.
- \_\_\_\_\_ 4. Check driveshaft, universal, and constant velocity joint condition.
- \_\_\_\_\_ 5. Check steering and suspension components.
- \_\_\_\_\_ 6. Check brake components.

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