

# **MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM**

## **SCOPE OF TEST CODE # 3 AUTOMOTIVE TECHNOLOGY**

### **WRITTEN EXAM – 100 QUESTIONS**

TIME ALLOWED: 3 HOURS

#### **PERCENT OF TEST:**

4% Health and Safety

15% Automotive Fundamentals

- Hand Tools
- Power Tools
- Fasteners
- Vehicle Service
- Basic Maintenance

9% Engine/Engine Performance

- Precision Measuring
- General Engine Problems
- Emission Control Systems
- Engine Repair Techniques
- Engine Performance

22% Drive Train

- Automatic Transmission
- Manual Transmission
- Drive Axles
- Four Wheel Drive
- Manual Transmission Clutch Assembly

20% Electrical

- General Electrical Systems
- Batteries
- Starting System
- Charging System
- Electrical Accessories
- Ignition Systems
- Basic Hybrid Theory

10% Heating and Air Conditioning

- Automotive Refrigerant Theory
- Heating & Air Conditioning

5% Suspension and Steering

- Wheels & Tires
- Suspension Systems
- Steering Systems
- Wheel Alignment

15% Brakes

- System Research & Service
- Hydraulic Brakes
- Drum Brakes
- Disc Brakes
- Power Brakes
- Miscellaneous Components
- Antilock Brake Systems

THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

## SCOPE OF TEST CODE # 3 – AUTOMOTIVE TECHNOLOGY

-Page 2-

SOME QUESTIONS REQUIRE A SYNTHESIS OF KNOWLEDGE BASED ON EXPERIENCE IN THE FIELD AND MAY NOT BE FOUND IN ANY BOOK. HOWEVER, **CANDIDATES ARE ENCOURAGED TO PREPARE FOR THEIR EXAMS BY REVIEWING TEXTBOOKS AND REFERENCE MATERIAL WHICH HAS BEEN LISTED AS PART OF THIS EXAM OUTLINE. THESE RESOURCES CAN BE FOUND USING ONLINE SEARCH TOOLS, ONLINE VENDORS AND WEBSITES. CONTACT THE VOCATIONAL TECHNICAL TEACHER TESTING OFFICE IF YOU NEED FURTHER ASSISTANCE IN LOCATING RESOURCES LISTED IN THE EXAM OUTLINE. USE THE EXAM OUTLINE AND THE MA VOCATIONAL TECHNICAL EDUCATION FRAMEWORKS TO FOCUS YOUR PREPARATION FOR THE EXAM.**

You may refer to <http://www.doe.mass.edu/ccte/cvte/> for the Massachusetts Vocational Technical Educator Frameworks.

### **THE FOLLOWING LIST OF REFERENCE MATERIALS WAS DEVELOPED AS A GUIDE FOR WRITTEN EXAM CANDIDATES:**

**(USE CURRENT EDITIONS FOR ALL REFERENCE MATERIALS)**

DELMAR'S AUTOMOTIVE TECHNOLOGY by Jack Erjavec  
Delmar Thomson Learning

DELMAR'S ASE TEST PREP SERIES by Delmar  
Delmar Thomson Learning

MODERN AUTOMOTIVE TECHNOLOGY by James E. Duffey  
Good Heart Wilcox

AUTOMOTIVE TECHNOLOGY – PRINCIPLES, DIAGNOSIS AND SERVICE by James Halderman  
Pearson-Prentice Hall

AUTOMOTIVE SERVICE – INSPECTION, MAINTENANCE, REPAIR by Tim Gilles  
Delmar Cengage Learning

SCOPE OF TEST CODE **# 3 – AUTOMOTIVE TECHNOLOGY**

-Page 3-

The written exam consists of 100 multiple choice questions. Each question consists of one incomplete sentence or a questions followed by four choices. Listed below are several sample items:

In a parallel circuit when you add a resistor to an existing circuit, the total circuit resistance:

- a. goes up.
- \* b. goes down.
- c. stays the same.
- d. none of the above.

When replacing a hydraulic brake line, which of the following is the correct procedure?

- a. Use seamless copper tubing with single flared ends.
- \* b. Use double flared single length steel line.
- c. Use single length non-flared steel or copper tubing.
- d. Use double flared single length copper tubing.

\* indicates correct answer

THE TEACHER TESTING PROGRAM WILL PROVIDE NON-PROGRAMMABLE CALCULATORS FOR USE IN COMPLETING THE WRITTEN EXAM. DOCUMENTATION REGARDING THESE CALCULATORS WILL BE INCLUDED IN YOUR ADMISSION PACKAGE.

**MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM**

**SCOPE OF TEST CODE # 3 AUTOMOTIVE TECHNOLOGY**

**PERFORMANCE EXAM**

**TIME ALLOWED: 4 HOURS**

**PERCENT OF TEST:**

12% Air Conditioning & Heating

27% Electrical

8% Engine Performance

11% Brakes

13% Steering and Suspension

13% Driveline

13% Engine, Mechanical

3% Safety

THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

PERFORMANCE EXAM CANDIDATES WILL BE ASSESSED ON THEIR COMPLETION OF THE EXAM TASKS AND THEIR DEMONSTRATION OF INDUSTRY AND OSHA RECOMMENDED SAFETY PROCEDURES.

MOST TASKS REQUIRE A SYNTHESIS OF KNOWLEDGE BASED ON EXPERIENCE IN THE FIELD AND MAY NOT BE FOUND IN ANY BOOK. HOWEVER, **CANDIDATES ARE ENCOURAGED TO PREPARE FOR THEIR EXAMS BY REVIEWING TEXTBOOKS AND REFERENCE MATERIAL WHICH HAS BEEN LISTED AS PART OF THIS EXAM OUTLINE. THESE RESOURCES CAN BE FOUND USING ONLINE SEARCH TOOLS, ONLINE VENDORS AND WEBSITES. CONTACT THE VOCATIONAL TECHNICAL TEACHER TESTING OFFICE IF YOU NEED FURTHER ASSISTANCE IN LOCATING RESOURCES LISTED IN THE EXAM OUTLINE. USE THE EXAM OUTLINE AND THE MA VOCATIONAL TECHNICAL EDUCATION FRAMEWORKS TO FOCUS YOUR PREPARATION FOR THE EXAM.**

**CANDIDATE IS RESPONSIBLE FOR:**

Work Clothes  
Safety Glasses

**SCOPE OF TEST CODE # 3 AUTOMOTIVE TECHNOLOGY**

-Page 2-

**CANDIDATES WILL BE EVALUATED ON THE FOLLOWING CRITERIA:**

1. Ability to follow task procedures to manufacturer's specifications.
2. Correct selection of tools and equipment.
3. Demonstration of work habits to trade standards.
4. Result of completed tasks.
5. Safety.

**ON SITE AVAILABLE EQUIPMENT**

Snap-on mt 1560 avr	Sun VAT45 Series Tester
Snap-on Verus Scan Tool	Fluke77 Series Multimeters
Genisys Scan Tool	Autel Maxisys Scan Tool
Hunter 4 Wheel Alignment Machine	Snap-on DVOM
Power Probe Scan Tool	GM Tech II
Robinar A/C Machine 134 Charging Station	Midtronic Battery Testor

**RESOURCES AVAILABLE**

Mitchell On Demand

Aldata

Identifix

**ALL ALIGNMENT TASKS WILL BE PERFORMED ON A FOUR WHEEL ALIGNMENT SYSTEM.**

**CANDIDATE MUST WEAR APPROPRIATE WORK CLOTHES  
AND  
SAFETY GLASSES AT ALL TIMES DURING THE EXAM.**

**THE FOLLOWING LIST OF REFERENCE MATERIALS WAS DEVELOPED AS A GUIDE FOR PERFORMANCE EXAM CANDIDATES:**

Safety Orientation NCCER, Person Prentice Hall  
[www.crafttraining.com](http://www.crafttraining.com)

[www.osha.gov](http://www.osha.gov) Go to Regulations, select sections:  
[1910.1200 - Hazard Communication](#)  
[1910 Subpart I - Personal Protective Equipment](#)

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**CANDIDATES ARE REMINDED THAT THE USE OF A CALCULATOR IS ALLOWED FOR THE PERFORMANCE EXAM PROVIDING YOU BRING YOUR OWN.**

UPDATED: 3-2016 lmb