

AUTOMOTIVE TRAINING CENTRE

Professional Automotive Technician Training Program

144-Hour Training Cycle

12 Students per Cycle | 3 Cycles per Year | 36 Students per Year

1. Program Overview

The Professional Automotive Technician Training Program provides young trainees with practical technical knowledge and hands-on skills required to work effectively in a modern automotive workshop. The program combines automotive fundamentals, mechanical maintenance, electrical and electronic systems, diagnostics, professional diagnostic tools, and accurate spare-parts identification.

2. Program Objectives

- Build a strong foundation in automotive systems, components, terminology and workshop safety.
- Develop practical maintenance and inspection skills applicable to both light-duty and heavy-duty vehicles.
- Develop the ability to understand and diagnose automotive electrical and electronic systems.
- Train students to use professional diagnostic and workshop equipment correctly and safely.
- Teach accurate vehicle and spare-parts identification using VIN/chassis information and vehicle configuration.
- Develop a systematic approach to troubleshooting so students learn to identify causes rather than simply replace parts.

3. Program Structure

Module	Subject	Hours
1	Automotive Fundamentals & Workshop Practice	24
2	Light & Heavy-Duty Vehicle Maintenance	48
3	Automotive Electrical, Electronics & Diagnostics	48
4	Diagnostic Tools, Spare Parts & VIN Identification	24
	TOTAL	144

4. Recommended Training Methodology

The program follows a practical-first vocational methodology:

**THEORY → DEMONSTRATION → HANDS-ON PRACTICE → DIAGNOSIS →
ASSESSMENT**

A target balance of approximately 40% theory and 60% practical training is recommended, equivalent to approximately 58 hours of theory and 86 hours of practical activity across the 144-hour cycle.

Module 1 — Automotive Fundamentals & Workshop Practice

Duration: 24 hours

Theory Topics

- Vehicle architecture and major automotive systems
- Automotive terminology and basic technical concepts
- Basic engine and mechanical principles
- Vehicle fluids and lubricants
- Workshop safety and personal protective equipment
- Safe use of hand tools and basic workshop equipment
- Basic vehicle inspection principles
- Vehicle identification and VIN/chassis number fundamentals

Practical Training

- Vehicle walk-around and basic inspection
- Identification of major vehicle components
- VIN/chassis number identification and recording
- Basic fluid and condition checks
- Correct selection and use of workshop hand tools
- Workshop safety exercises and supervised practical tasks

Expected Competencies

- Identify major vehicle systems and components.
- Explain the basic function of major automotive systems.
- Perform a basic vehicle inspection.
- Use common workshop tools safely.
- Correctly record VIN and relevant vehicle information.

Module 2 — Light & Heavy-Duty Vehicle Maintenance

Duration: 48 hours

Theory Topics

- Petrol and diesel engine fundamentals
- Lubrication and cooling systems
- Fuel and air systems
- Exhaust and emissions fundamentals
- Manual and automatic/automated transmission fundamentals
- Clutch and driveline systems
- Steering and suspension systems
- Hydraulic and air-brake fundamentals
- Wheels and tires
- Preventive maintenance principles
- Differences between light-duty and heavy-duty vehicle maintenance

Practical Training

- Vehicle maintenance inspection
- Oil and filter service
- Cooling-system inspection
- Engine-bay inspection
- Brake inspection
- Steering and suspension inspection
- Tire and wheel inspection
- Driveline and CV/joint inspection
- Heavy-duty diesel inspection
- Air-brake component identification and supervised inspection
- Complete supervised vehicle maintenance assignment

Expected Competencies

- Perform structured maintenance inspections.
- Carry out basic routine servicing under supervision.
- Identify worn, damaged or abnormal components.
- Understand common mechanical symptoms and possible causes.
- Apply manufacturer specifications and correct tightening procedures.
- Recognize when a problem requires further diagnostic investigation.

Module 3 — Automotive Electrical, Electronics & Diagnostics

Duration: 48 hours

Theory Topics

- Voltage, current, resistance and basic circuit theory
- Ohm's law and electrical measurement
- Wiring, fuses, relays and grounding
- Battery, starting and charging systems
- Sensors and actuators
- Electronic control units (ECUs)
- CAN bus and basic vehicle communication
- OBD and diagnostic systems
- Diagnostic trouble codes and freeze-frame information
- Live data and basic signal interpretation
- Systematic diagnostic methodology
- Root-cause troubleshooting

Practical Training

- Multimeter measurement exercises
- Battery and charging-system checks
- Basic starting-system checks
- Electrical circuit testing
- Sensor and actuator testing
- Diagnostic scanner connection and operation
- Reading and interpreting fault codes
- Live-data analysis
- Guided fault-finding exercises on real vehicles/training systems
- Complete diagnostic case study

Expected Competencies

- Perform basic automotive electrical measurements.
- Understand the purpose of major electrical and electronic components.
- Use a diagnostic scanner to obtain and interpret information.
- Interpret fault codes in context rather than treating them as automatic proof of component failure.
- Follow a logical diagnostic process to identify likely root causes.
- Know when additional testing or specialist support is required.

Module 4 — Diagnostic Tools, Spare Parts & VIN Identification

Duration: 24 hours

Theory Topics

- Professional diagnostic scanners and basic diagnostic equipment
- Multimeters and basic electrical testing tools
- Battery testers and basic oscilloscope introduction
- Workshop special tools and correct tool selection
- VIN/chassis number and vehicle configuration
- Make, model, production year and engine identification
- Engine and transmission codes
- Electronic parts catalogues
- OEM part numbers and aftermarket references
- Cross-referencing and superseded part numbers
- Compatibility verification
- Accurate spare-parts identification

Practical Training

- Identify the vehicle from VIN/chassis information
- Navigate an electronic parts catalogue in a controlled training environment
- Identify the required component from a repair requirement
- Verify OEM and/or aftermarket references
- Check compatibility against vehicle configuration
- Complete a practical parts-identification case from vehicle to correct part reference

Expected Competencies

- Select the appropriate diagnostic or workshop tool for a task.
- Correctly identify a vehicle and its relevant configuration.
- Accurately identify required spare parts.
- Verify part compatibility before recommending or ordering a component.
- Document the identified part and reference clearly.

6. Assessment Framework

Assessment Area	Recommended Weight
Theory / technical knowledge	30%
Practical workshop performance	50%
Final integrated practical assessment	20%

Practical assessments should evaluate safety, correct procedure, tool selection, technical understanding, quality of work and ability to document findings.

7. Final Integrated Practical Assessment

1. Correctly identify the assigned vehicle and record the VIN/chassis information.
2. Perform a structured vehicle inspection.
3. Identify a mechanical, electrical or diagnostic issue presented in the exercise.
4. Select appropriate tools and perform the required tests.
5. Determine the likely cause using a logical diagnostic process.
6. Identify the required component or spare part using vehicle-specific information.
7. Verify the relevant part reference and compatibility.
8. Document findings and recommended action.

8. Graduate Profile

A successful graduate will have foundational practical competence to inspect and maintain light-duty and heavy-duty vehicles, understand basic mechanical, electrical and electronic systems, use professional diagnostic equipment, apply a systematic troubleshooting process, and accurately identify required spare parts using VIN and vehicle-specific information.

9. Annual Delivery Model

Item	Per Cycle	Annual
Students	12	36
Training cycles	1	3
Training hours per cycle	144	432

The three-cycle model provides an annual capacity of 36 trainees, with each trainee completing a 144-hour vocational training cycle.

10. Core Learning Journey

UNDERSTAND → MAINTAIN → DIAGNOSE → IDENTIFY

The curriculum is intentionally structured as a coherent progression: students first understand the vehicle, then learn to maintain it, diagnose faults, and finally identify the correct tools and vehicle-specific spare parts required to complete professional workshop tasks.