



MANSOUR
ACADEMY

Mansour Academy Courses

Courses Structure: -

We will deliver the following courses during 2024:

COURSE NAME	DURATION	PRICE
Engine Operation, Diagnosis and Overhauling	40 hrs	5000 EGP
Automotive Electrical Systems Diagnosis and Wiring Diagram	40 hrs	5000 EGP
Engine Management Operation and Diagnosis	40 hrs	5000 EGP
Automatic Transmission Operation, Diagnosis and Overhauling	40 hrs	5000 EGP
CVT Transmission Operation, Diagnosis and Overhauling	24 hrs	3000 EGP



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COURSES OUTLINE:

1. Engine Operation, Diagnosis and Overhauling.

Objective:

Participants will learn the theory, construction, inspection, diagnosis and repair of internal combustion engines and related systems. Upon completion, they will be able to perform basic diagnosis, measurement and repair and overhaul on automotive engines using appropriate tools, equipment, procedures and service information.

Topics:

- Engine Basics & Components.
- Engine Operation & Configurations.
- Types of Engines (Petrol VS Diesel).
- Engine Fuel Supply system.
- Engine Lubrication System.
- Engine Cooling System.
- Engine Air Intake systems.
- Engine Exhaust System.
- Power Enhancement Systems (Turbocharger and Supercharger).
- Engine Mechanical Diagnosis.
- Engine Measurement



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COURSES OUTLINE:

2. Automotive Electrical Systems Diagnosis and Wiring Diagrams.

Objective:

After completing this course, you will be able to understand the vehicle electrical systems operation, diagnose electrical system faults and read the vehicles' wiring diagrams.

Topics:

- Basics Electricity – Theoretical & Practical.
- Digital Multimeter usage for diagnose – Theoretical & Practical.
- Vehicle Electrical Circuits Types and Components.
- Basic Electrical Circuits and Schematic Symbols.
- Vehicle Electrical Circuit Faults.
- Vehicle Starting and Charging Systems.
- Types of Batteries and Diagnosis.
- Vehicle Wiring Diagrams.



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COURSES OUTLINE:

3. Engine Management.

Objective:

After completing this course you will be able to understand the operation of the Engine control unit, its inputs and outputs, how can the engine controls the fuel injection and the ignition timing, the diagnostic tools operation and how to be used in engine diagnosis, engine check lamp operation and how to read the DTC, and the emission control system .

Topics:

- Engine Control Unit operation.
- Engine Control Unit inputs.

Crankshaft position sensor.

Camshaft position sensor.

Vehicle speed sensor

Intake air temperature sensor.

Engine coolant temperature sensor.

Engine oil pressure sensor.

Brake switch.

- Low-side-controlled Devices and high-side-controlled Devices
- Engine control unit outputs.

Automatic Shutdown (ASD) Relay.

Electronic Throttle Control (ETC) System.

Fuel Injectors.

Ignition coils.

Fuel pump.

Turbocharger waste gate.

- Short-term Adaptive and long-term Adaptive.
- SPEED DENSITY EQUATION and calculation of injector pulse width

Oxygen sensor.

Knock sensor.

Turbocharger pressure sensor.

Ambient air temperature sensor.

Manifold absolute pressure sensor.

Throttle position sensor.

Acceleration pedal position sensor.



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COURSES OUTLINE:

4. Automatic Transmission Operation, Diagnosis and Overhauling.

Objective:

Participants will learn the theory, construction, inspection and diagnosis, and practical repair of Automatic Transmission and related systems. Upon completion, they will be able to perform basic diagnosis, measurement and overhaul the Automatic Transmission using appropriate tools, equipment, procedures and service information.

Topics:

- Classification of Automatic Transmissions.
- Automatic Transmission Components.
- Torque converter operation and diagnosis
- Planetary gear set operation and diagnosis
- Clutch sets operation and diagnosis
- Overhaul procedures of the automatic transmission.



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COURSES OUTLINE:

5. CVT Transmission Operation, Diagnosis and Overhauling.

Objective:

Participants will learn the theory, construction, inspection, diagnosis and repair of CVT Automatic Transmission and related systems. Upon completion, they will be able to perform basic diagnosis, measurement and overhaul the CVT Transmission using appropriate tools, equipment, procedures and service information.

Topics:

- CVT Automatic Transmission operation.
- Differences between CVT and conventional automatic transmission.
- Torque converter operation and diagnosis
- Assembly and disassembly of CVT transmission
- Overhaul procedures of the automatic transmission.