



GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

MECHANIC MOTOR VEHICLE

(Duration: Two Years)

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 5



SECTOR– AUTOMOTIVE



Directorate General of Training

MECHANIC MOTOR VEHICLE

(Engineering Trade)

(Revised in 2019)

Version: 1.2

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL - 5

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

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1. COURSE INFORMATION

During the two-year duration, a candidate is trained on subjects- Professional Skill, Professional Knowledge, Engineering Drawing, Workshop Calculation & Science and Employability Skills related to job role. In addition to this, a candidate is entrusted to make/do project work and Extra Curricular Activities to build up confidence. The practical skills are imparted in simple to complex manner & simultaneously theory subject is taught in the same fashion to apply cognitive knowledge while executing task. The broad components covered under Professional Skill subject are as below:

FIRST YEAR: This year will cover the safety aspect in general and specific to the trade, identification of tools & equipment, raw materials used. The trainee will perform Measuring & marking by using various Measuring & Marking tools. The trainee will be able to plan and perform basic fastening and fitting operations. Familiarize with basics of electricity, test and measure the electrical parameter. Skilling practice on maintenance of batteries being done. He will practice making various welding joints by using Arc and gas welding, trace and identify various hydraulics and pneumatics components and identify components in Air and Hydraulic Brake system.

The candidate will be able to dismantle Diesel Engine of LMV as per given standard procedures. Able to achieve skill on Overhauling of Cylinder Head, valve train, Piston, connecting rod assembly, crankshaft, flywheel and mounting flanges, spigot and bearings, camshaft etc. practice reassembling all parts of engine in correct sequence as per workshop manual. Perform testing on engine. Also the trainee practice on repair and maintenance of Cooling, lubrication, Intake & Exhaust system of Engine. Perform maintenance of diesel fuel system, FIP, Governor and monitor emission of vehicle. Practice on repair, maintenance and overhaul of Starter, alternator and perform Execute troubleshooting in engine of LMV/HMV.

SECOND YEAR: In the second year, the trainee will learn to perform overhauling of light vehicle/Heavy Vehicle transmission units including Gear box, Single plate clutch assembly, Diaphragm clutch assembly, Constant mesh Gear box, synchromesh gear box, gear linkages, Propeller shaft, Universal Slip Joint, Rear axle assembly, Differential assembly. The trainee will perform overhauling of light vehicle Chassis units, adhering to the specifications and tolerances for the vehicle and the manufacturer's approved overhauling methods, Standard repair methods, health and safety requirements etc. the trainee will learn how to overhaul, repair and service Shackle, Leaf spring, Front axle, Front and rear suspension, Steering Gearbox- worm and roller type, Steering Gearbox- Reticulating ball type, Master cylinder, Tandem Master cylinder, Front and rear brake, Wheel cylinder, Vacuum booster, Air servo unit, Air tank (reservoir) etc. The trainee will also learn to carry out wheel balancing and Wheel Alignment to within acceptable limits.

The trainee will troubleshoot vehicle Engine components and ascertain repair. Plan & service Electronic Control Unit and check functionality. Diagnose & rectify the defects in vehicle to ensure functionality of vehicle. The trainees will carry out overhauling of charging system. Also the trainee will perform overhauling of starting system. Troubleshoot electrical components of vehicle and ascertain repair. Overhaul, service and testing Vehicle Air Conditioning system, its parts and check functionality. The trainee will also learn to drive vehicle following Traffic Regulations and maintenance of good road conduct.

5. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

5.1 LEARNING OUTCOMES (TRADE SPECIFIC)

FIRST YEAR:

1. Check & perform Measuring & marking by using various Measuring & Marking tools (*Vernier Calliper, Micrometer, Telescope gauges, Dial bore gauges, Dial indicators, straightedge, feeler gauge, thread pitch gauge, vacuum gauge, tire pressure gauge*) following safety precautions.
2. Plan & perform basic fastening & fitting operation by using correct hand tools, Machine tools & equipments.
3. Trace and Test all Electrical & Electronic components & circuits and assemble circuit to ensure functionality of system.
4. Check & Interpret Vehicle Specification data and VIN and Select & operate various Service Station Equipments.
5. Dismantle & assemble of Engine from vehicle (LMV/HMV) along with other accessories.
6. Overhaul Engine and check functionality.
7. Trace, Test & Repair Cooling and Lubrication System of engine.
8. Trace & Test Intake and Exhaust system of engine.
9. Service Fuel System and check proper functionality.
10. Test Engine Performance and set idling speed.
11. Monitor emission of vehicle and execute different operation to obtain optimum pollution as per emission norms.
12. Carryout overhauling of Alternator and Starter Motor.
13. Diagnose & rectify the defects in LMV/HMV to ensure functionality of vehicle.

SECOND YEAR:

14. Plan & perform maintenance, diagnosis and servicing of transmission system.
15. Plan & perform maintenance, diagnosis and servicing of Vehicle Control System
16. Troubleshoot vehicle Engine components and ascertain repair
17. Plan & service Electronic Control Unit and check functionality.
18. Diagnose & rectify the defects in vehicle to ensure functionality of vehicle.
19. Carryout overhauling of charging system.
20. Carryout overhauling of starting system.
21. Troubleshoot electrical components of vehicle and ascertain repair.

22. Overhaul, service and testing Vehicle Air Conditioning system, its parts and check functionality.
23. Drive vehicle following Traffic Regulations and maintenance of good road conduct