

Syllabus

For the trade of

**DRIVER CUM MECHANIC**  
**(LIGHT MOTOR VEHICLE)**

**Under CTS**

**2002**

Designed by

**Government of India**  
**Ministry of Labour (D.G.E.&T.)**  
**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**  
**EN – Block, Sector – V, Salt Lake,**  
**Kolkata-700091.**

**List of members attended the Trade Committee Meeting to finalise the draft syllabus for the trade of “DRIVER CUM MECHANIC” (Light Motor Vehicle). Under C.T.S.**

S/Shri

1.	H. Somasundaram, Director	CSTARI, Kolkata	Chairman
2.	S. Ghosh Works Manager	Machino Techno Sales Ltd., Kolkata	Member
3.	P.K.Roy Environmental Engg.	W.B. Pollution control board	Member
4.	P.K.Das V.I.	A.T.I., Kolkata, Dasnagar	Member
5.	T.Mukhopadhyay DDT	CSTARI, Kolkata	Member
6.	Sanjay Kant, DDT	CSTARI, Kolkata	Member
7.	P. N. Yadav DDT	CSTARI, Kolkata	Member
8.	M. S. Ekambaram ADT	CSTARI, Kolkata	Member
9.	A. B. Dhara T.O.	CSTARI, Kolkata	Member
10.	P.K.Koley T.O.	CSTARI, Kolkata	Member

*(Approved by 42 NCVT members through circulation)*

## GENERAL INFORMATION

1. Name of the Trade : DRIVER CUM MECHANIC  
(Light Motor Vehicle)
2. N.C.O. Code No. : 986.60
3. Duration of Craftsmen Training : 6 Months
4. Entry Qualification : Passed 10th Class Exam. under 10+2  
System of Education.
5. Age : Minimum 18 years
6. Space required : 3.5 sqm./trainee  
(Vehicle parking in common garage)

**OBJECTIVE** : The course is so designed that the trainee should have the knowledge about all components of the vehicle. He should be able to lubricate the parts of the vehicle, locate the defects and to attend the minor maintenance of the different types of light motor Vehicles. To drive light motor vehicles on different kinds of roads and surfaces observing the traffic rules. To check emission from vehicles tail pipe as per norms.

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**SYLLABUS FOR THE TRADE OF “DRIVER CUM MECHANIC  
(Light Motor Vehicle)” UNDER CTS.**

<b>Week No.</b>	<b>Practical</b>	<b>Related Theory</b>
<b><u>1 &amp; 2</u></b>	Safety Precautions while handling Tools, equipment and Machinery Familiarisation with the name and location of different assemblies of motor vehicles.	Motor Vehicle Act., Legal awareness Environmental Education (pollution etc.). Life enrich education, attitude & body language, Traffic rules & signs. First Aid, Fire precautions & seat belts. <b>Necessities of different assemblies of all (types )motor vehicles.</b>
3	Preliminary checking of the vehicle before driving. Straight driving on an open ground and practice in observing different gauges and meter while driving.	Driving road rules. Knowledge about log book and different papers related to vehicles.
4	Practice in changing gear from a) Low gear to high gear and b) High gear to low gear	Road traffic signal and hand signal. Local road map reading.
5	Straight driving on wide road and practice in changing gear from low gear to high gear and high gear to low gear.	Types of clutch and brakes, hand brake.
6	Driving through lanes and curves	Precautions to be taken while driving through lanes, curves and islands.
7	Practice in reverse driving	Precautions to be taken at the time of reversing the vehicle.
8	Practice in driving through sand, wet surface.	Precautions to be taken while driving through sand and wet surface.
9	Practice in driving steep slope and down hill.	Precautions to be taken while driving over slope and down hill.
10	Practice in parking vehicle. Parallel parking and diagonal parking.	Precautions to be taken at the time of different kind of parking.
11	Practice in driving over narrow bridges.	Precautions to be taken while driving over narrow bridges.
12	Practice in overtaking another vehicle. Detection of minor faults while driving.	Precautions to be taken at the time of overtaking another vehicle.
13 & 14	Driving on Highway, Night driving	Precautions to be taken while driving on Highway and during Night.
15 to 20	Driving Practice as stated through week no. 5 to 13 above.	

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<b>Week No.</b>	<b>Practical</b>	<b>Related Theory</b>
21	Practice on different tools and gauges used for maintenance of vehicles, general servicing of vehicle. Check Oil level in different unit.	Tools, measuring instruments, layout of different units on vehicle. Knowledge about CNG & LPG Gas kit.
22& 23	Checking thermostat valve in cooling system. Checking coolant reservoir tank. Air bleeding in diesel vehicle. Cleaning air cleaner and exhaust manifold, Cleaning and adjusting injectors, Silencer pipe, cooling motor. Emission testing and adjustment of air fuel ratio.	Cooling and lubrication system. Air Intake System. Exhaust system, Different types of fuel. Catalytic converter. Coolant part (Coolant reservoir tank). Cooling fan & motor. Emission testing equipment & procedure of testing.
24	Checking and setting wheel bearing play. Checking wheel jam & slipping of clutch. Wheel rotation and checking tyre pressure. Checking treads of tyre. Checking wheel alignment. Checking wiper.	Different types of clutch and gear boxes. Wheels Jam, Slipping of Clutches, Wind sealed washer tank, Wiper Blades. Necessity of wheel rotation. Different types of tyre & treads of the tyres. Wheel alignment.
25	Adjustment of brake paddle play, Checking of brake fluid level Bleeding brake system Tracing electrical circuit in vehicle. Checking different components of electrical system including fuse box and locating defective component. Carrying out checks on Alternator unit, Battery and Power units. Checking the Air conditioner and heater unit.	Different types of brakes including hand brakes. Different components in electrical system. Function of electronic control module, Different sensors, IAT, MAP, ECT, CMP,CKP, VSS, TP and O <sub>2</sub> . Check oil level in different units as required and also water level. Maintenance of lead acid battery and various methods of charging.
26	<b><u>Revision &amp; Test</u></b>	

**Note:-** Workshop Calculation & Science required for trade will be taught along with trade theory

**ACHIEVEMENT:** At the end of this course trainee should be able to :-

1. Identify different vehicles and units on them
2. Wash and clean vehicle
3. Lubricate a vehicle
4. Drive light motor vehicles on different kinds of roads and surfaces independently.
5. Knowledge about CNG & LPG kits.
5. Check emission from the vehicle.

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## LIST OF TOOLS AND EQUIPMENTS

For a batch of unit of 16 trainees

Sl.No.	Description	Quantity
1	2	3

### TOOL KIT

1.	Hammer ball Peen 0.75 Kg.	16
2.	Chisel Cold Flat 19 mm.	16
3.	Centre Punch 10 mm. Dia x 100 mm.	16
4.	Steel Rule 15 cm English and Metric	16
5.	Screw Driver 30 cm x 9 mm. Blade	16
6.	Screw Driver 20 cm x 9 mm. Blade	16
7.	Spanner DE Set of 12 pieces (6 mm. – 32 mm.)	16
8.	Piler Combination 15 cm	16
9.	Hand File 20 cm second cut	16
10.	Feeler gauge 20 blades (Metric)	16
11.	Ring spanner set of 12 pieces (6 mm. – 32 mm.)	16
12.	Steel tool box with Lock and Key (folding type) size 400 x 200 x 150 mm.	16
13.	Allen Key set of 12 pieces ( 2 mm.-14 mm.)	4 sets
14.	Circlip Piler (Ext. and Int.) 150 mm. And 200 (two each)	8 sets
15.	Philips screw driver type set of 5 pieces 100 mm. – 300 mm.	4 sets
16.	Socket spanner 6mm to 32mm (1 set of 12 nos.)	4 sets
17.	Jack light & heavy type	1 no.each
18.	Wheel wrench single & cross bar	1 no.each

### GENERAL EQUIPMENT

1.	Light Motor Vehicle (With double clutch and double brake pedal)	1 No.
2.	Light Motor Vehicle ( Running condition)	1 No.
3.	Traffic Signal Board	1 No.
4.	Fire Extinguisher	2 Nos.
5.	Fire brackets with stand	4 Nos.

6. *	Exhaust gas analyser (4 gases) with engine rpm sensor and engine coolant temperature sensor	1 no.
7. *	Smoke density meter with engine rpm sensor & engine coolant temperature sensor	1 no.
8.	Tyre pressure gauge	1 no.
9. *	Battery charger (12v to 36v) 10AMPs	1 no.
10.	Oil Can (25 ml.)	2 nos.
11.	Adjustable spanner 10" and 12"	2 nos. each
12.	Grease gun 1.5 kg capacity	1 no.
13.	Safety stand	1 no.

\* **N.B.:-** If any of the above equipment(s) is already available for other trades in the institute and can be spared then these need not be procured separately for this trade.