

**SYLLABUS FOR THE TRADE**

**OF**

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

**UNDER  
CRAFTSMAN  
TRAINING SCHEME (CTS)**

*Designed in– 2013*

*By*  
Government of India  
**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**  
Directorate General of Employment & Training  
Ministry of Labour & Employment  
EN-81, Sector-V, Salt Lake City  
Kolkata-700 091

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

Sl. No.	Name and Designation	Representing Organisation	Remarks
01	H. Somasundaram, Director	CSTARI, Kolkata	Chairman
02	S. Ghosh Works Manager	Machino Techno Sales Ltd., Kolkata	Member
03	P.K.Roy Environmental Engg.	W.B. Pollution control board	Member
04	P.K.Das V.I.	W.B. Pollution control board	Member
05	T.Mukhopadhyay DDT	CSTARI, Kolkata	Member
06	Sanjay Kant, DDT	CSTARI, Kolkata	Member
07	P. N. Yadav DDT	CSTARI, Kolkata	Member
08	M. S. Ekambaram ADT	CSTARI, Kolkata	Member
09	A. B. Dhara T.O.	CSTARI, Kolkata	Member
10	P.K.Koley T.O.	CSTARI, Kolkata	Member

*List of members attended the Workshop to finalize the syllabi of existing CTS into Semester Pattern held from 6<sup>th</sup> to 10<sup>th</sup> May'2013 at CSTARI, Kolkata.*

<b>Sl. No.</b>	<b>Name &amp; Designation</b>	<b>Organisation</b>	<b>Remarks</b>
1.	R.N. Bandyopadhyaya, Director	CSTARI, Kolkata-91	Chairman
2.	K. L. Kuli, Joint Director of Training	CSTARI, Kolkata-91	Member
3.	K. Srinivasa Rao, Joint Director of Training	CSTARI, Kolkata-91	Member
4.	L.K. Mukherjee, Deputy Director of Training	CSTARI, Kolkata-91	Member
5.	Ashoke Rarhi, Deputy Director of Training	ATI-EPI, Dehradun	Member
6.	N. Nath, Assistant Director of Training	CSTARI, Kolkata-91	Member
7.	S. Srinivasu, Assistant Director of Training	ATI-EPI, Hyderabad-13	Member
8.	Sharanappa, Assistant Director of Training	ATI-EPI, Hyderabad-13	Member
9.	Ramakrishne Gowda, Assistant Director of Training	FTI, Bangalore	Member
10.	Goutam Das Modak, Assistant Director of Trg./Principal	RVTI, Kolkata-91	Member
11.	Venketesh. Ch. , Principal	Govt. ITI, Dollygunj, Andaman & Nicobar Island	Member
12.	A.K. Ghate, Training Officer	ATI, Mumbai	Member
13.	V.B. Zumbre, Training Officer	ATI, Mumbai	Member
14.	P.M. Radhakrishna pillai, Training Officer	CTI, Chennai-32	Member
15.	A.Jayaraman, Training officer	CTI Chennai-32,	Member
16.	S. Bandyopadhyay, Training Officer	ATI, Kanpur	Member
17.	Suriya Kumari .K , Training Officer	RVTI, Kolkata-91	Member
18.	R.K. Bhattacharyya, Training Officer	RVTI, Trivandrum	Member
19.	Vijay Kumar, Training Officer	ATI, Ludhiana	Member
20.	Anil Kumar, Training Officer	ATI, Ludhiana	Member
21.	Sunil M.K. Training Officer	ATI, Kolkata	Member
22.	Devender, Training Officer	ATI, Kolkata	Member
23.	R. N. Manna, Training Officer	CSTARI, Kolkata-91	Member
24.	Mrs. S. Das, Training Officer	CSTARI, Kolkata-91	Member
25.	Jyoti Balwani, Training Officer	RVTI, Kolkata-91	Member
26.	Pragna H. Ravat, Training Officer	RVTI, Kolkata-91	Member
27.	Sarbojit Neogi, Vocational Instructor	RVTI, Kolkata-91	Member
28.	Nilotpal Saha, Vocational Instructor	I.T.I., Berhampore, Murshidabad, (W.B.)	Member
29.	Vijay Kumar, Data Entry Operator	RVTI, Kolkata-91	Member

### **GENERAL INFORMATION**

1. Name of the Trade : DRIVER CUM MECHANIC (Light Motor Vehicle)
2. N.C.O. Code No. :
3. Duration of Craftsmen Training : 6 Months(1 Semester)
4. Power Norms : 6.82 KW
5. Space Norms : 56 sq. mtr.  
(Vehicle parking in common garage)
6. Entry Qualification : Passed in 10<sup>th</sup> Class Examination & Minimum 18 years of age
7. Unit strength : 16 (No. of Trainees)
8. Instructors Qualification : a) Diploma in Mechanical/Automobile Engg From recognized board of technical education with two years experience in the relevant field with LMV Driving license  
OR  
10<sup>th</sup> Passed + NTC/NAC in the Trade of “DRIVER CUM MECHANIC (Light Motor Vehicle)” with 3 Years post qualification experience in the relevant field with LMV Driving license  
  
b) Preference will be given to a candidate with Crafts Instructor Certificate (CIC)

\* **Note:** At least one Instructor must have Degree/Diploma in Mechanical/Automobile Engg. when applied for 02 units.

## 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.

### **SYLLABUS FOR THE TRADE OF "DRIVER CUM MECHANIC" (Light Motor Vehicle)**

#### **FIRST SEMESTER**

**Duration : Six Months**

**Semester Code: DCM;SEM-I**

<b>Week No.</b>	<b>Trade Practical</b>	<b>Trade Theory</b>
1 & 2	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. Necessities of different assemblies of all (types) motor vehicles.
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 downhill.	Precautions to be taken while driving over slope and downhill.
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.	
21	Practice on different tools and gauges used for maintenance of vehicles, general servicing of vehicle. Check Oil level in different unit. Checking thermostat valve in cooling system. Checking coolant reservoir tank. Air bleeding in diesel vehicle.	Tools, measuring instruments, layout of different units on vehicle. Knowledge about CNG & LPG Gas kit. Cooling and lubrication system. Air Intake System. Exhaust system, Different types of fuel.
22& 23	Cleaning air cleaner and exhaust manifold, Cleaning and adjusting injectors, Silencer pipe, cooling motor. Emission testing and adjustment of air fuel ratio. Checking and setting wheel bearing play. Checking wheel jam & slipping of clutch.	Catalytic converter. Coolant part (Coolant reservoir tank). Cooling fan & motor. Emission testing equipment & procedure of testing. 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.
24	Wheel rotation and checking tyre pressure. Checking treads of tyre. Checking wheel alignment. Checking wiper. 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 O2. Check oil level in different units as required and also water level. Maintenance of lead acid battery and various methods of charging.
25	<b>Revision</b>	
26	<b>Examination</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.

**TRADE: DRIVER CUM MECHANIC (Light Motor Vehicle)  
LIST OF TOOLS & EQUIPMENT**

**A. TRAINEES TOOL KIT FOR 16 TRAINEES +1 INSTRUCTOR**

Sl.No.	Description	Quantity
1.	Hammer ball Peen 0.75 Kg.	17 Nos.
2.	Chisel Cold Flat 19 mm.	17 Nos.
3.	Centre Punch 10 mm. Dia x 100 mm.	17 Nos.
4.	Steel Rule 15 cm English and Metric	17 Nos.
5.	Screw Driver 30 cm x 9 mm. Blade	17 Nos.
6.	Screw Driver 20 cm x 9 mm. Blade	17 Nos.
7.	Spanner DE Set of 12 pieces (6 mm. - 32 mm.)	17 Nos.
8.	Plier Combination 15 cm	17 Nos.
9.	Hand File 20 cm second cut	17 Nos.
10.	Feeler gauge 20 blades (Metric)	17 Nos.
11.	Ring spanner set of 12 pieces (6 mm. - 32 mm.)	17 Nos.
12.	Steel tool box with Lock and Key (folding type) size 400 x 200 x 150 mm.	17 Nos.
13.	Allen Key set of 12 pieces ( 2 mm.-14 mm.)	4 sets
14.	Circlip Plier (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 each
18.	Wheel wrench single & cross bar	1 each

**B. 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	1No.
8.*	Battery charger (12v to 36v) 10AMPs	1 no.
9.	Oil Can (25 ml.)	2 nos.
10.	Adjustable spanner 10" and 12"	2 nos. each
11.	Grease gun 1.5 kg capacity	1 no.
12.	Safety stand	1 no.
13.	Desktop computer latest configuration and related MS office software	1 No.
14.	Laser printer	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.

### C. WORKSHOP FURNITURE

<b>Sl. No.</b>	<b>Class Room/ Workshop Furniture</b>	<b>Quantity</b>
1.	Discussion Table	1 No.
2.	Tool Cabinet	2 Nos.
3.	Trainees locker	Required to accommodate 16 lockers
4.	Book shelf (glass panel)	1 No.
5.	Storage Rack	2 Nos.
6.	Storage shelf	2 Nos.
7.	Computer table	1 No.
8.	Computer chair	2 Nos.
9.	Printer table	1 No.
10.	Online UPS 2KVA	1 No.