

SYLLABUS FOR DRIVER

Professional Skills(Trade Practical)	Professional Knowledge(Trade Theory)
<ol style="list-style-type: none">1. Importance of trade training, List of tools & Machinery used in the trade.2. Health, Safety and Environment guidelines, legislations & regulations as applicable. Disposal procedure of waste materials like cotton waste, metal chips/burrs etc. Basic safety introduction.3. Basic injury prevention, Basic first aid, Hazard identification and avoidance, safety signs for Danger, Warning, caution & personal safety message.4. Preventive measures for electrical accidents & steps to be taken in such accidents.5. Practice Use of Fire extinguishers.6. Arrange to obtain Lerner license from concern RTO .	<p>Importance of safety and general precautions observed in the in the industry/shop floor. All necessary guidance to be provided to the new comers to become familiar with the working of Industrial Training Institute system including stores procedures.</p> <p>Introduction of First aid. Operation of electrical mains.</p> <p>Introduction of PPEs. Introduction to 5S concept & its application.</p> <p>Response to emergencies e.g.; power failure, fire, and system failure.</p> <p>DRIVING THEORY:</p> <p>Qualities required for a good driver: Good behaviour, Patience, Responsibility, Self Confidence, Anticipation, Concentration, Courtesy, Consideration for other Road Users, Defensive Driving, Knowledge of Road Rules and Regulations, Knowledge of Vehicle Controls, Maintenance, simple mechanism and effect of</p>

	<p>Competitiveness, Over- Confidence, impatience. Driving Regulations: Road Rule</p> <p>Regulations made under sec 118 of Motor Vehicle Act 1988, Hand Signals of a driver, Traffic & Road Signs, Hand signals of traffic constable and traffic wardens, Introduction to Automatic Light Signals, Introduction to Road markings, Speed regulation on city road and highways.</p>
<p>7. Perform Preliminary checking / identification of various vehicle parts / aggregates.</p> <p>8. Identify various gauges & Tell-tale Lamps in the instrument panel & interpretation of readings.</p> <p>9. Perform Identification & use of different types electrical switches.</p>	<p>Simple introduction to Automobile Engines and their working.</p> <p>Location of VIN plate / Engine serial Number.</p> <p>Vehicle Controls and its Response:</p> <p>Foot Control – Accelerator, Brake, Clutch</p> <p>Hand Control – Steering Wheel, Gear Shifting Lever, Hand Brake, Switches for direction Indicators, Head Lights, Horns, Ignition Switch, Dim-Bright Switch, and Wiper switch – Speed Control etc.</p> <p>Other Controls – Rear View mirrors – Types- adjustments, Instrument Cluster, Description of Speedo meter/Trip meter, RPM Gauge, Oil pressure Gauge, Temp Gauge, Fuel Gauge, and Ammeter other Gauges and Dials, Tell-tale lamps, Audio warnings, Wind Screen – their purpose & Working.</p> <p>Adjustment of seat and knowledge on seat belts, door</p>

	<p>locks. Fuse carrier location, Fuse layout. Knowledge on Latest Information systems: On Board Diagnosis system. Intelligent transport system. Air Bags, Audio warning systems Automated Manual Transmission, Dual power mode (Power or Economy Mode).</p>
<p>10 Perform Pre – Driving Checks: Before sitting on driver seat, After sitting on driver seat. 11 Checking the document pertains to the driver and vehicle. 12. Perform Adjustment of seat, Rear View mirrors and wearing seat belt. 13. Carry out Vehicle Starting Practice. 14. Check the leaks of tyres in between the journey. 15. Ensure Main Switch off, windows, doors are closed, apply wheel chokes and complete paper work.</p>	<p>Pre – Driving Checks: - Before sitting on driver seat, Leakage of Fuel, Oil, water, Air, Battery etc - After sitting on driver seat, Gauges etc. - Checking the document pertains to the driver and vehicle. Starting: Precautions and Procedure to be followed while starting. Clutch down start Accelerator: Proper use of Accelerator. Moving: Precautions to be followed while moving. Use of first gear.</p>
<p>16 Perform Clutch Practice: Biting and Balance point. 17 Perform Steering practice: In basic yard - In bare land and</p>	<p>Use of Clutch: Correct Leg position on the Clutch pedal Biting Point, Balance Point.</p>

<p>between tyres to develop Judgment Straight, Left and Right Turn, Steering in '8' shaped bend.</p>	<p>Steering - Holding Steering Wheel:</p> <ul style="list-style-type: none"> - Push and pull method - On the move - While gear changing - While turning - While sounding Horn - While operating dashboard switches - While Signaling - On emergency
<p>18. Perform Gear Practice: Practice Selection of gears, up shifting, down shifting.</p> <p>19. Brake practice: In level ground and in Slope and Braking and Stopping Practice.</p>	<p>Gear Shifting - Up shifting, Down Shifting – Procedures. Use of Over Drive Gear. Gear shift pattern on different vehicles. Pressure point shifting method in synchromesh & AMT Vehicle. Stopping: Normal stopping, Emergency stopping, use of Engine Brake. Stopping distance = Reaction Distance + Braking Distance.</p>
<p>20. Practice Driving on the Road. (10 hrs) 21. Perform Overtaking Practice: (05 hrs) 22. Practice Overtaking stationary and Moving vehicles from Left and Right Side.</p>	<p>Driving on the Road: Anticipation, Judgment, Positioning the Vehicle according to other Road users.</p> <p>Use of IPDE (Identification, Prediction, Decision, Execution) principles while Driving MSPSL (Mirror Signal Maneuver) – Routine</p> <p>Use of Indicators. Defensive Driving Techniques: Judgment, Anticipation, Escape route.</p> <p>Priority for certain Vehicles:</p>

	<p>Emergency Vehicles, Fire Engines and Ambulance.</p> <p>Overtaking: Overtaking stationary vehicle, Moving vehicle in Left and right side – IPDE principle. Traffic Education MV Act Section 118.</p>
<p>23. Practice 3 Point Turn, 5 Point Turn, 'U' Turn.</p> <p>24. Practice on following distance.</p>	<p>Other Maneuvers: Merging, Diverging, turning to left and Right, 3-point Turn, 5 point turn, Passing, Crossing, Cornering. Following Distance: Meaning, Distance Method, Car length Method, 2 seconds time rule method, Distance between cars while driving at Railway crossing.</p>
<p>25. Perform Reverse Practice: Straight, Left, right and Reverse practice in '8' shaped bend Perform Parking Practice: Angular Parking, Perpendicular parking, Parallel Parking – Forward Entry and Reverse Entry. Parking facing Uphill and Parking facing downhill.</p>	<p>Reversing: Locating Reverse gear, Confidence, Speed control, Steering Control, Weaving in '8' shaped Bend.</p> <p>Parking: Parallel, Angular, Perpendicular, Parking facing uphill, Parking facing downhill.</p>
<p>26. Practice Night Driving.</p> <p>27. Practice Driving According to Lanes: Single, Two, Four and Six lane Roads.</p> <p>28. Practice Village Road Driving & Perform Highway Driving.</p> <p>29. Practice Driving in Crowded Street.</p>	<p>Night Driving: Location of Head light switch, Use of Head light, Use of Dipper at night- Procedure.</p> <p>Lane Selection and lane Discipline: Single, double, 4 and 6 lanes Village and Highway Driving:</p>

<p>30. Perform Cross country Driving.</p>	<p>Procedures and precautions.</p> <p>Driving under Special Condition: In wet weather, In dawn, dusk and misty road, In dense traffic, Cross country driving - Knowledge on Ground Clearance.</p>
<p>31. Practice Hill Driving: Driving uphill, driving downhill, Driving in Hairpin bend. 4 WD Drive Practice.</p> <p>32. Perform Vehicle Towing Practice.</p>	<p>Hill Driving: Starting in hill using parking brake method and slipping the clutch method – Procedures. Selection of gear – uphill and downhill – procedures. Towing a disabled Vehicle: Procedures, Precautions, Limitations under road rule regulations 1989, Identification of Towing Eye. Speed limit, 'ON Tow' board.</p>
<p>33. Practice on stopping the vehicle using Handbrake.</p> <p>34. Perform Simulator Driving Practice: With Simulation of extreme conditions.</p>	<p>Emergency Manoeuvres: Skidding, Horn Stuck, Fire, Wheels Coming out, Brake failure, Broken Stub axle, burst off front tyre, Sudden steering wobbling, snapping of steering linkage, Jamming of accelerator pedal, Snapping of clutch linkage, under special circumstances of collision with disabled vehicle. Brake failure during downhill, sudden obstruction in front of vehicle etc. – Prevention is better than cure.</p>
<p>35. Practice Driving on Various road as per Road Rule Regulation.</p> <p>36. Practice Demo on Hand Signals of a Driver.</p> <p>37. Perform Driving test at concern RTO</p>	<p>TRAFFIC EDUCATION: Motor Vehicle Act, Important definitions and salient features of motor vehicle Act. Vehicle registration and insurance of motor vehicle. Learner's license and its</p>

4

particulars, Driving License particulars and its renewal. Knowledge about log book and different Forms and papers related to vehicles. Vehicle fitness certificate, Permit and Tax and production of documents on demand by checking officers.

Knowledge on seating Capacity and load limit. Knowledge on loading and load distribution on vehicle while loading of goods. Know your Road: Functional classification, Design Speed, Road Geometrics, Surface types and characteristics, Slopes and Elevation.

Sight Distance: At bends, At intersections

Road Junctions: Principles and Types, T junction, Y junction, 4-Arm junction, Staggered Junction, Controlled Junction, Uncontrolled Junction.

Traffic Islands: Types of roundabouts, channelisers, Median Bye-Pass, Subway, Over-bridge and flyovers:

Purpose, precautions and procedures

Driving according to other Road Users

Characteristics: Pedestrians, drunkards, Children, blind, deaf, dumb, youth, aged, women with children, Slow-moving vehicles, Mopeds, Motorcycles, Autos, Tempos, Vans, Buses, Trucks, VIP, Ambulance, Fire Engine and Animals etc..

Accidents: Types, Causes, Preventive methods, Drivers

8

	<p>duties and responsibilities on the occurrence of accidents.</p> <p>Symbols on the vehicle which is carrying Hazardous goods: Panel Board, Class Labels.</p> <p>Important provision of motor vehicle Act section 122,125,126,128,131,132,133,134,135,136 & 139.</p> <p>Legal awareness.</p> <p>Traffic offences and penalties stipulated under the act and rules. Driving Test: Sub rule 3 of Rule 15 of Central Motor Vehicle Rules 1989.</p>
<p>ENGINE BASICS:</p> <p>38. Identification of different types of vehicle and engine components.</p> <p>39. Familiarization of operator manual. Check / replenish / top up – lubricating oil, engine coolant, power steering hydraulic oil, wind screen wiper water, battery electrolyte and transmission oil.</p> <p>40. Replace – air cleaner, oil filter & fuel filter. Apply Grease to parts / through greasing points (if necessary).</p>	<p>VEHICLE MECHANISM:</p> <p>Nomenclature of different parts of vehicle and their locations.</p> <p>Classification of vehicle & load carrying capacities. Pattern of loading various goods.</p> <p>E C & I C Engine – Types, engine terminologies, parts description & functions.</p> <p>Types of fuels used in vehicle. Working principle of 4 stroke SI & CI engines.</p> <p>Differences between 2 strokes & 4 strokes engine, petrol & diesel engines. Concept of MPFI, CRDI, Turbo Chargers, EDC Fuel supply layouts in diesel engines, Injection systems. Brief introduction on injectors.</p> <p>Lubrication system, types of filters & lubricants.</p> <p>Types of Greases & greasing points.</p> <p>Recommended vehicle maintenance schedules.</p>

<p>TRANSMISSION SYSTEM:</p> <p>41. Check / replenish / transmission oil. 42. Check breathers and Clutch Pedal Play.</p> <p>BRAKE SYSTEM</p> <p>43. Check and top up Brake fluid in the Reservoir. 44. Perform Brake Bleeding. 45. Perform Adjustment of brake paddle play.</p>	<p>Layout of power flow from Engine to wheels. Purpose of clutch, Types of Clutch, Knowledge on Clutch play, Types of gear box- Gear Shifting procedures General defects in clutch, manual gearbox Knowledge on Automatic transmission and Automated Manual Transmission. Propeller Shafts, & Knowledge on differential. Knowledge on 2 and 4 wheel drive. Types of Brake systems – working principle of drum and disc brakes General defects in brake systems. Tandem Master Cylinder Procedure to be followed in case of brake failure. Antilock Brake System</p>
<p>STEERING SYSTEM</p> <p>46. Check level of power steering oil in the reservoir.</p> <p>SUSPENSION SYSTEM</p> <p>47. Grease the points in suspension system.</p>	<p>Types of steering System and its working, Power assisted steering, Steering linkages. Types of suspension system, Greasing points Effect of tampering the suspension system. Brief on suspension and its effects on steering.</p>
<p>BATTERY AND IGNITION SYSTEM:</p> <p>48. Remove and refit of Fuses, head lamp, Signal lamps, Parking lamp bulbs. 49. Check and adjust Head Lamp High Beam, Low Beam, Pass by beam. 50. Check Combination switches, Directional indicators, Wiper-Intermittent operation, low & high speed</p>	<p>Ignition system circuit & components. Actions to be taken when Ignition key lost. Spare/Duplicate key information & location. Definition of Fuses & need for fuses in electrical circuits. Brief introduction on ignition Description of chemical effect, Batteries and cells, lead acid batteries & stay maintenance</p>

10

<p>operations.</p> <p>51. Perform Cleaning and topping up of a lead acid battery.</p> <p>52. Remove and refit lead acid battery. (05 hrs)</p> <p>53. Carry out checks on Alternator unit, Battery and Power units.</p>	<p>free (SMF) batteries. Fuse Ratings.</p>
<p>TYRE REPAIR/INSPECTION:</p> <p>54. Practice Removal & re-fitting of wheel from vehicle.</p> <p>55. Perform Measurement of tread wear.</p> <p>56. Carry out Inflating the tyres with compressed Air /Nitrogen from Tyre inflator.</p> <p>57. Repair a Puncture Tyre using Tubeless puncture Repair kit.</p> <p>58. Practice on Tyre rotation as per vehicle manufacturers recommendation.</p>	<p>Types of wheels, designation, construction.</p> <p>Types of tyres & tubes (solid & pneumatic tyre – Cross ply & Radial ply, desirable properties component & function, designation, tyre ratings for temperature & traction.</p> <p>Maintenance of tyre & tubes. Reasons for defects of tyre. Tread patterns & their applications.</p> <p>Inspection procedure.</p> <p>Tyre pressure monitoring system. Procedure for retreading the Tyre.</p> <p>Procedure for tyre rotation for Different make of vehicle.</p> <p>Tubeless Tyres.</p> <p>Thread wear Indicator. DOT (Manufacturing Date code)</p> <p>Importance of Two wheel & four wheel alignment.</p> <p>Reasons for Alignment problems – steering pull, off-center steering, steering shimmy, excessive steering effort, poor self-centering and memory steer, bump steer, torque steer & steering harshness-alignment diagnostics chart & steering problem diagnostic chart.</p>

	<p>Meaning of balance, causes & effects of imbalance, vibration. Identification of source, transferpath & responder of vibration(can be felt & can be heard)</p> <p>Steering wheel shake – shimmy,wobble & waddle</p> <p>Brief on static balance, dynamic balance, Mounting errors (radial & lateral) & excessive (Tyre& rim)run out-lateral & radial and-mismatches.</p>
<p>Maintenance of VehicleSystems:</p> <p>59. Perform Air bleeding indiesel vehicle.</p> <p>60. Check and replacing wipeblades.</p> <p>61. Checking coolant reservoirtank.</p> <p>62. Practice Cleaning aircleaner.</p> <p>63. Perform Cleaning of cooling motor.</p> <p>64. Carryout Emission testing.</p> <p>Check the Air conditionerand heater unit.</p> <p>JACKS & HAND TOOL KITS:</p> <p>65 Practice on using different type of vehicle jacks.</p> <p>66 Practice on using vehiclehand tool kit.</p>	<p>Cooling system & types of Anti- freeze /Anti rust solutions use. Air intake and Exhaust System Knowledge about CNG & LPG Gaskit. Cooling and lubrication system. Air Intake System.</p> <p>Exhaust system, Different typesof fuel. Fuel Properties, Stoichiometric Ratio.</p> <p>Introduction to HVAC system.</p> <p>Specification, types and uses ofdifferent kinds of vehicle jacks.Description, care and maintenance of Mechanical & Hydraulic jacks.</p> <p>Description, care and maintenance of vehicle tools inkit.</p> <p>Identification of Jacking Points.Basics of computer, Email operation system.</p> <p>Fluency in reading and writing</p> <p>Writing of Reports</p>

12

	<p>Mathematical calculations on loads/freight/fares/KMPL.</p> <p>Management of personal expenses.</p> <p>Need to Cultivate habit of Savings for future needs.</p> <p>Knowledge on various general and personal Insurance Knowledge on Various saving schemes available with nationalized bank.</p>
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